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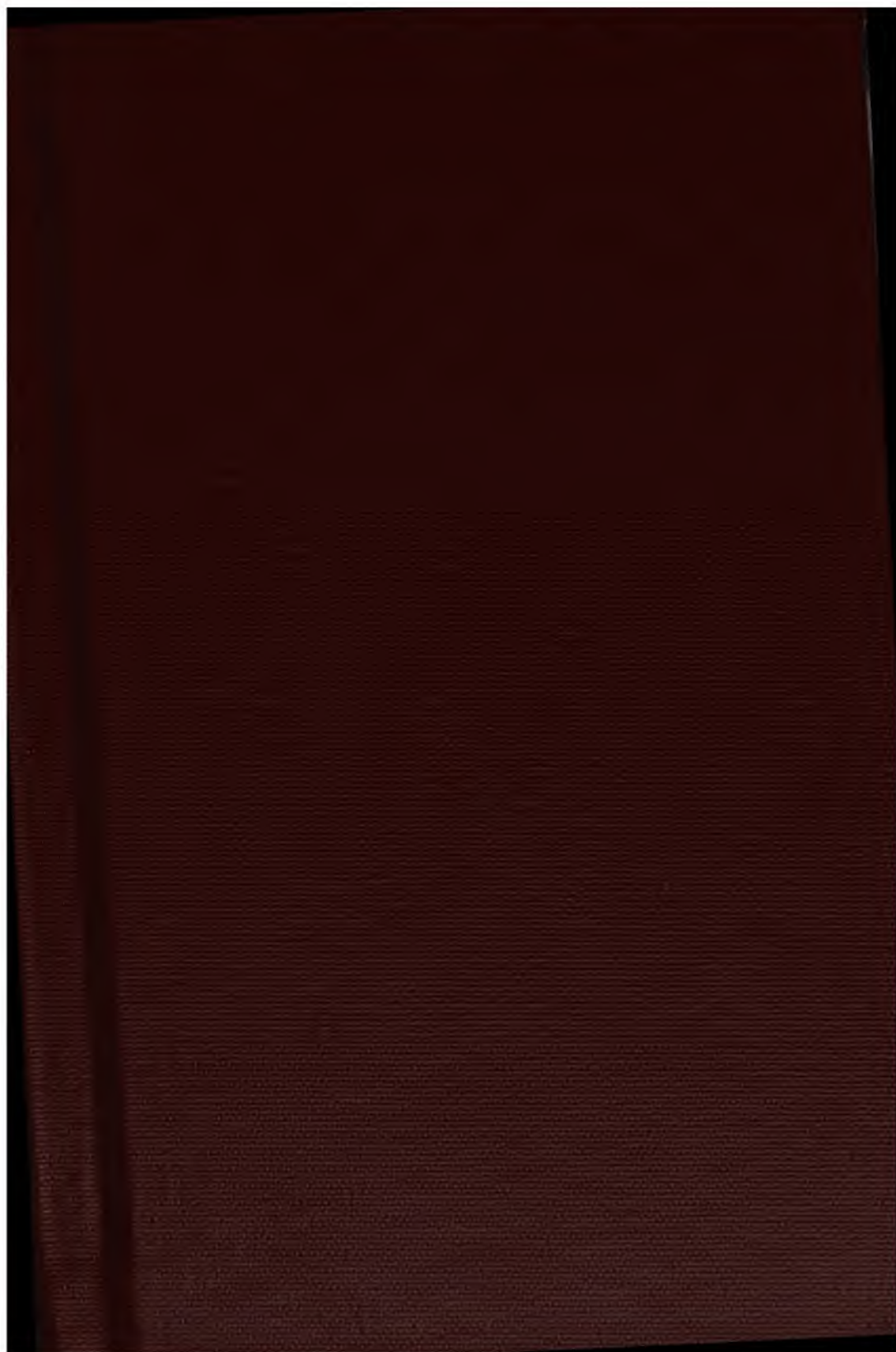
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STATEMENT
OF THE
SOCIETY FOR THE PROTECTION OF ANIMALS
LIABLE TO VIVISECTION,
ON THE
REPORT OF THE ROYAL COMMISSION
ON VIVISECTION.



PUBLISHED BY THE SOCIETY FOR THE PROTECTION OF ANIMALS
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1875.

SOCIETY FOR THE PROTECTION OF ANIMALS LIABLE TO VIVISECTION.

Presidents and Vice-Presidents.

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The Most Noble the Marquis of BUTE.	BURY, K.G.
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* * The Offices of the Society have been removed from 13, Granville Place (temporarily lent by Dr. Hoggan), to 1, Victoria Street, Westminster (corner of Tothill Street), within a few hundred yards of the Houses of Parliament.

By a Resolution of the Committee, the Subscription for Membership of the Society has been fixed at 10s., but it is hoped that larger Donations will be generally given. It is respectfully requested that all Contributions may be paid either at the Office of the Society as above (P. O. Orders made payable to the Clerk, Mr. William Jackson), or (Cheques only) to the Bankers of the Society, Messrs. Goslings and Sharpe, 19, Fleet Street, E.C.

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A Royal Commission was issued on the 22nd of June, 1875, of the following noblemen and gentlemen :

Viscount CARDWELL,
Lord WINMARLEIGH,
Rt. Hon. W. E. FORSTER,
Sir JOHN BURGESS KARSLAKE,
Prof. THOMAS HENRY HUXLEY,
JOHN ERIC ERICHSEN, Esq.
RICHARD HOLT HUTTON, Esq.

The Commission was ordered :

“To inquire into the practice of subjecting live animals to experiments for scientific purposes, and to consider and report what measures, if any, it may be desirable to take in respect of any such practice.”

The Report of the Commissioners, drawn up in accordance with the above command, is dated 8th January, 1876.

STATEMENT.

THE COMMITTEE OF THE SOCIETY FOR THE PROTECTION OF ANIMALS LIABLE TO VIVISECTION have perused the REPORT OF THE ROYAL COMMISSION ON VIVISECTION, and proceed, according to their original undertaking, to offer to the Society an analysis of its leading contents. They are of opinion that the purport of the Report has been in some respects seriously misconstrued by the public, in consequence of certain imperfect accounts which first obtained circulation.

After receiving an immense mass of evidence, the Royal Commissioners have arrived unanimously at the conclusion, that the impetus given of recent years to practical physiological investigations, together with other reasons, justifies the public call for attention to the mode in which they are pursued. They remark :

“ We find that until a comparatively recent period physiology had been for some time past but little cultivated in this country, but that there has been of late years a great movement in advance. . . . It is the expectation of those most conversant with the subject that physiological investigations will more and more take place in connection with public institutions, and that an organized system of instruction in physiology will speedily become an important feature in scientific education. It is evident therefore that the number of experiments at present performed upon living animals can by no means be regarded as the limit of the number which we are called upon to include in our consideration, but that, on the contrary, we must assume that the experimental method is being rapidly developed.”

In considering the Recommendations to be submitted to the Queen, the Commission inquires whether Vivisections can be altogether prohibited. Its decision is :

“That such an enactment must inevitably lead, either to a general evasion of the law, or to an universal flight of medical and physiological investigators and students from the United Kingdom to foreign schools and laboratories, and that by this means the general treatment of animals in experiments would certainly not be altered for the better.”

Nor do they consider that, if possible, legislative prohibition would be reasonable. They refer to the benefits which medicine and surgery have received from discoveries made by such means, and draw from them the deduction, that whether we look to the possibility of cure, or to the probability of prevention of disease, they cannot recommend their total prohibition. Nevertheless, some legislative action on the subject appears necessary. They quote the opinion of Sir William Fergusson, Bart.—

“If the public really knew what was actually going on in this country at this time, they would expect an interference on the part of the Crown and Parliament, just as much as with reference to the dissecting of dead bodies years ago (1040);

and add the judgments—on the whole, in favour of some legislative measure—of many eminent surgeons and physiologists : Dr. Burdon Sanderson, Dr. Michael Foster, Dr. Gamgee, Sir Thomas Watson, Sir George Burrows, Sir James Paget, Dr. Haughton, and Professor Rolleston. The objections to legislation on the subject, they remark, proceed principally from persons who, like Mr. Lister, appear to consider that any interference of the law implies an imputation of cruelty against the gentlemen engaged in such investigations.

Independently of authority in favour of legislative interference, the Commission has felt itself called upon to recommend it “by reason of the thing.”

"It is manifest that the practice (of Vivisection) is from its nature liable to great abuse. . . . It is not to be doubted that inhumanity may be found in many persons of high position as physiologists. . . . That very severe experiments are constantly performed cannot be doubted by those who read the documentary evidence which has been laid before us, and the testimony of Dr. Walker and other witnesses, who speak from personal knowledge of the sufferings which, they say, have been often unnecessarily inflicted in the name of Science.* Dr. Anthony, who resides in the neighbourhood of Birmingham, told us that he is acquainted with instances of many men who carry on experiments in private houses from mere curiosity. . . . We have had some evidence that cases have arisen in which the unpractised student has taken upon himself in his private lodgings to expose animals to torture without anaesthetics."†

"Evidence of this nature," the Commission judiciously observes, "is not easily obtained,"‡ and proceeds to add :

"Besides the cases in which inhumanity exists, we are satisfied that there are others in which carelessness and indifference prevail to an extent sufficient to form a ground for legislative interference. . . . We have been much struck by the consideration that severe experiments have been engaged in for the purpose of establishing results which have been considered inadequate to justify that severity by persons of very competent authority. . . . It is, moreover, much to be regretted that a feeling of suspicion and even of abhorrence should have been permitted to grow up among a large and very estimable portion of the public against those who are devoted to the improvement of medicine and the advancement of science."

After reviewing these arguments, the Commissioners conclude, among other points, that "the infliction of severe and protracted agony is in any case to be avoided, and that the abuse of the practice (of Vivisection) by inhuman or unskilful persons—in short, the infliction upon animals of any unneces-

* See Appendix A. (Abuses.)

† See Appendix B. (Conduct of Students.)

‡ See Appendix C. (Difficulty of obtaining Evidence.)

sary pain—is justly abhorrent to the moral sense of your Majesty’s subjects generally, not least so of the most distinguished physiologists,” &c.

The existing law, however, appears inadequate to deal with the difficulty.

“It takes no special cognizance of the subject, but leaves it to the operation of the Statute 12 & 13 Vict. c. 92, if indeed that Act should be held to be applicable; and the Act extends only to domestic animals, leaving frogs, rabbits, guinea-pigs and other animals, entirely unprotected. It gives, that is, in respect of domestic animals, a remedy doubtful even if applicable, and not easily enforced; and, in respect of others, no remedy at all.”

After reviewing the two Bills laid last year before Parliament, and the Bill prepared by the Royal Society for the Prevention of Cruelty to Animals, Dr. Hoggan’s plan, and several schemes proposed by different witnesses,* the Commission makes in passing some important remarks on the use of anæsthetics.† They think that, “in framing rules for the administration of a system, there ought to be much jealousy in too readily admitting convenient doctrines, and that proper care should be taken to insist upon the removal of the sensibility to pain even in the case of cold-blooded animals.” The use of Urari they specifically condemn, observing that it has been “positively stated by perhaps the highest authority on such a subject, Claude Bernard, to have no effect in producing insensibility to pain.” In conclusion, the Commission lays before the Queen the following outline of legislation:

“What we should humbly recommend to Your Majesty would be the enactment of a law by which experiments upon living animals, whether for original research or for demonstration, should be placed under the control of the Secretary of State, who should have power to grant licenses to persons, and, when satisfied of the propriety of doing so, to withdraw them. No other persons should be permitted to perform expe-

* See Appendix D. (Legislative Suggestions.)

† See Appendix E. (Sensibility of Animals.)

riments. The holders of licenses should be bound by conditions, and breach of the conditions should entail the liability to forfeiture of the license ; the object of the conditions should be to ensure that suffering should never be inflicted in any case in which it could be avoided, and should be reduced to a minimum where it could not be altogether avoided. This should be the general scope of the conditions ; but their detailed application should be left to be modified from time to time by the Minister responsible according to the dictates of experience. In the administration of the system generally, the responsible Minister would of course be guided by the opinion of advisers of competent knowledge and experience. Dr. Playfair's Bill provided a machinery for the purpose, and some arrangements of the kind proposed in that measure would be necessary. But we think it is inexpedient to divide the responsibility of the Secretary of State with that of any other persons by statutory enactment, and we recommend that his advisers should be from time to time selected and nominated by himself. Their names should be made known to the profession and the public. It may be found desirable that one of the conditions to be attached to a license should be that the experiments should be performed in some particular place ; but this is a detail which may vary with circumstances, and we think it ought not to be stereotyped by statute.

"The Secretary of State must have the most complete power of efficient inspection and of obtaining full returns and accurate records of all experiments made. Any place in which experiments are performed must be registered and open to efficient inspection. The appointment of an inspector or inspectors will be necessary, and we have seen that the analogy of the Anatomy Act has been appealed to by many high authorities. It is to be observed that the duties under that Act are of a nature much more mechanical than those which will be required in the present instance. The inspectors must be persons of such character and position as to command the confidence of the public no less than that of men of science.

"Abuse of the power conferred by the license must, of course, render the holder liable to its withdrawal ; but this will involve great disgrace ; and the withdrawal of the license of an eminent man without real cause might be a serious public mis-

chief. We have felt it necessary, therefore, to consider what steps should be taken when the question of such withdrawal may arise. We think that the holder of a license, when he shall receive notice that the Secretary of State intends to withdraw it during the period for which it has been granted, should be at liberty to demand a public inquiry; that this inquiry should be held before one of the Judges of the Supreme Court, with two competent assessors to be appointed by the Secretary of State, the Court having the full power of conducting it as a legal investigation by summoning and swearing witnesses, issuing commissions, and so forth:—that on the result of this inquiry, the Secretary of State should determine whether the license ought to be withdrawn, and when he decides in the negative, should have the power of giving the holder of the license the reasonable costs of his defence.

“Magistrates ought to be empowered, on cause shown, to authorize the police to enter and search the premises of persons suspected of performing experiments without a license, and the performance of such experiments without a license should be penal.

“It has been suggested that cases may occur in which an urgent necessity may have occasioned an experiment when there has been no licensed person within reach, and it has not been possible to apply for a license; such as a sudden case of suspected poisoning, arising, perhaps, in a remote place, when the experiment has been reasonably considered indispensable, for the purpose either of cure or of medico-legal investigation. Bonâ-fide cases of this kind ought evidently to be free from the risk of vexatious prosecution, and this can be secured by vesting in the Secretary of State the power of putting a veto on a prosecution.”

The Commission believe that by such a measure “the progress of medical knowledge may be made compatible with the just requirements of humanity,” and they trust

“—that her Majesty’s Government and the Parliament of this kingdom will recognize the claims of the lower animals to be treated with humane consideration, and will establish the right of the community to be assured that this claim shall not be forgotten amid the triumphs of advancing Science.”

To this Report, which has been unanimously signed by the Commissioners, one of them, Mr. Hutton, has appended his further conclusions. He desires to suggest an additional restriction to the proposed measure, namely, that the *Household Animals*, dogs and cats, should be exempted altogether from liability to experiments of this kind. The grounds of Mr. Hutton's opinion he states to be three-fold :

1st. There is strong presumption that the demands of physiologists for those creatures is supplied by persons who decoy them away from their proper owners, and that in this way a strong temptation is furnished for actual theft, and all the distress which thefts of this nature often cause. Mr. Hutton refers to the answer of one physiologist (2823), that he was "not informed" as to the way his dogs were procured ; and of another (5747), that 90 cats had been "supplied to him by a man," and that he "made no inquiries."

2ndly. Mr. Hutton would exempt dogs and cats from experiment because, beyond other animals, they are endowed with the intelligence which seems nearly to coincide in the animal kingdom with high sensibility, and are liable to the *hyperæsthesia* to which civilized man appears susceptible beyond the savage.

3rdly. Mr. Hutton argues that the claim of exemption from painful experiment of the Household Animals "suggests itself from the very nature of our relation to these creatures which we have trained up in habits of obedience to man and of confidence in him, so that there is something of the nature of treachery, as well as of insensibility to their sufferings, in allowing them to be subjected to severe pain even in the interests of Science." "If suffering is to be inflicted at all, with whatever humane economy it is meted out, it is better, both as regards the evil of enduring and the evil of inflicting it, that the humble friends of man, which have been taught to obey and trust him, should not be selected as the victims." Mr. Hutton further remarks : "I may add, I do not find any trace in our evidence that there

is a single one of the important scientific discoveries which have been represented to us as due to, or finally verified by, experiments of this kind, of which Science would have been deprived had any such limitation as this been at the time in force."

These important conclusions of the Royal Commission appear to require a few qualifying remarks and exceptions.

The Committee does not adopt the opinion that the benefits derived from Vivisection justify it, when the pain inflicted on the animal is serious and prolonged, or can be held to involve a greater evil to the victim than death; and they regret to observe that the Commissioners have made no recommendation to prevent such abuse. They note, on the contrary, with approval the opinion of the Commission, stated on p. 18 of the Report, that "*the infliction of severe and protracted agony is in any case to be avoided;*" and they fully adopt Mr. Hutton's observation, that "where the pursuit of scientific truth and common compassion come into collision, it seems that the ends of civilization, no less than of morality, require us to be guided by the latter and higher principle." It may be observed, further, that such a principle has received official recognition, in a Minute of the Privy Council drawn up in 1874 by Mr. Forster, for the direction of experiments on animals made under the annual grant of £2000 for Scientific Investigations in aid of Medicine. Mr. Forster concludes: "I desire to have on record the opinion . . . that no experiments on living animals should be conducted at the cost of the State without the employment of some anæsthetic in cases of painful operation, and without a report from time to time by the gentleman conducting the experiments, explaining their object and showing their necessity for the purpose of discovery" (1367).

They consider also that, in view of the evidence received, the language of the Commission might have been somewhat stronger in condemning the abuses of the practice of Vivisection, and they think it probable that it would have been more decisive but for the following untoward circumstances:

1st. As the Report remarks, the evidence respecting private Vivisection done by students is "difficult to obtain," and few witnesses were found to offer any direct testimony concerning it, though several eminent men avowed their conviction that it prevails to a lamentable extent in connection with nearly every Medical School, and Mr. James Mills honourably confessed with regret his own share in such practices when a student in the Veterinary College at Edinburgh. Respecting the degrees of suffering inflicted in the laboratories of professed physiologists in the United Kingdom, the Commission was obliged to content itself without once checking the testimony of the physiologists themselves by that of any attendant or other eye-witness. Such evidence, had it been received, would have been eminently satisfactory to the public, who can hardly be expected to feel that all question is closed by the mere opinion of gentlemen whose practice was the very subject of investigation; and amongst some of whom it appears that the standard of humane conduct is such, that two of them maintained that it involved no great suffering for animals to be starved, or baked to death, while two others defended their own experiments on the portentous scale of 90 cats for one series of very painful experiments, and of 36 dogs for another.*

2nd. It is noticeable that the opponents of Vivisection were not represented on the Commission by a single physiologist. The Committee respectfully and gratefully recognize the care, candour and ability, displayed by the Royal Commission during its long and arduous labours. The Commissioners, however, themselves remark: "We have not judged it our duty, the majority of us not having had professional training, to decide upon matters of differing professional opinion." It is to be regretted that this inequality was not rectified by the presence of at least one specially qualified Commissioner, who might, on some of the many occasions of conflicting professional opinion, have helped them to arrive at such a decision.

3rd. Whilst bowing to the justice of the Commission's deci-

* See 2778, 4751, 4745, 5721.

sion "to avoid receiving adverse testimony in respect to foreign physiologists beyond what is to be derived from their own published writings," and only "receiving with pleasure from competent witnesses an assurance of the humane spirit which has been known to prevail in some foreign laboratories," the Committee regret that this course most unfortunately excluded from the purview of the Commission those darker facts concerning the recklessness of vivisectors, whereupon a complete judgment on the subject could alone be based. It is the opinion of this Committee that the abuses of the practice have never yet attained in England anything like the same extension as in Germany, Italy and France; and that English physiologists, with few, if any, exceptions, have so far remembered their national characteristics as generally to exercise at least a comparative degree of humanity in their experiments. It is on the well-grounded fear that the new zeal for such experiments now extending amongst us, together with the importation of foreign teachers and the influence of foreign example,* may ere long make English laboratories scenes of no less cruelty than those of other countries, that this Society has been formed; and the Committee think that without taking into full view the virulence of this moral pestilence at our doors, it was not possible for the Royal Commission to enter a sufficiently stringent warning of the necessity for legislation.

Finally, as regards the measures suggested to the Queen and Parliament by the Commission, the Committee of the Society for the Protection of Animals liable to Vivisection cannot, of course, pronounce definitely an opinion upon them until they are embodied more or less perfectly in the Bill which, it is confidently hoped, Her Majesty's Government will, with the least possible delay, proceed to lay before the Legislature. Whether the result will prove satisfactory or the reverse will obviously depend on the details of the measure, and the thoroughness wherewith they embody the principle thus hap-

* See Appendix F. (Foreign Physiologists.)

pily established by the Royal Commission,—that “the progress of medical knowledge ought to be made compatible with the just requirements of humanity.” The Committee observes with great regret that there is no proposal in the Report of the Commission (such as was contained in Dr. Lyon Playfair’s recent Bill) prohibiting the use of Vivisection for purposes of mere demonstration as distinct from research.

Mr. Hutton’s suggestion “that the *Household Animals*, dogs and cats, should be exempted from all experiments under the meaning of the Act,” meets with the full approval of the Committee, who would include under such exemption those other faithful servants of man, the horse, ass and mule.* In conclusion, the Committee find a just summary of their sentiments in Mr. Hutton’s expression of his views, “*The measure proposed will not at all satisfy my own conceptions of the needs of the case, unless it results in putting an end to all experiments involving not merely torture, but anything at all approaching thereto.*”

* See Appendix G. Reasons for Exemption of Horses, &c.

APPENDIX.

APPENDIX.

It was the intention of the Committee of the Society for the Protection of Animals liable to Vivisection to prepare for the use of Members and others, a Digest of the entire Evidence presented to the Royal Commission. This Evidence, however, is so voluminous (extending to upwards of 6000 questions and answers), and the able Report of the Commission has, on the whole, so fairly summarized it, that the Committee have relinquished the larger design, and have requested their Honorary Secretaries to prepare Extracts, tending to substantiate the essential justice of the position taken by the Society. The advocates of Vivisection may, it is thought, be left to give, through the powerful journals at their disposal, any publicity they desire to such portions of the Evidence as they may consider favourable to their views and practice.

In Appendix D. will be found an abstract of all the views and suggestions of the witnesses on the subject of Legislation ; to which are added, for convenience of reference, the two Bills introduced last Session into Parliament by Lord Henniker and Dr. Lyon Playfair.

(A.)

**Extracts of Evidence on Extension of the Practice of
Vivisection, and Abuses connected therewith.**

The following extracts from the Evidence taken before the Royal Commission, throw some light on these points.

Dr. ACLAND observes :

"The number of persons in this and other countries who are becoming biologists without being medical men is very much increasing. Modern civilization seems to be set upon acquiring biological knowledge, and one of the consequences of this is, that whereas medical men are constantly engaged in the study of anatomy and physiology for a humane purpose (that is, for the purpose of doing immediate good to mankind), there are a number of persons now who are engaged in the pursuit of these subjects for the purpose of acquiring abstract knowledge. That is quite a different thing. I am not at all sure that the mere acquisition of knowledge is not a thing having some dangerous and mischievous tendencies in it. . . . Now it has become a profession to discover ; and I have often met persons who think that a man engaged in original research for the sake of adding to knowledge is therefore a far superior being to a practising physician, who is simply trying to do good with his knowledge. . . . So many persons have got to deal with these wonderful and beautiful organisms just as they deal with physical bodies that have no feeling and no consciousness" . . . thus . . . "the multiplicity of these investigations has in a great measure arisen (944). I have every reason for believing that it is often done abroad with what I should call an unscientific carelessness, which would be so hurtful to the moral sense of England that it would not be endured" (941).

Mr. G. H. LEWES says :

"One man discovers a fact or publishes an experiment, and instantly all over Europe certain people set to work to repeat it. They will repeat it, and repeat it, and repeat it" (6330).

Sir. W. FERGUSON, Bart. :

"The impression on my mind is, that these experiments are done frequently in a most reckless manner (1035), and (if known to the public) would bring the reputation of certain scientific men far below what it should be (1036). I have reason to imagine that sufferings incidental to such operations are protracted in a very shocking manner. I will give you an illustration of an animal being crucified for several days, perhaps introduced several times into a lecture-room for the class to see how the experiment was going on (1037). I believe it (the above) to be done in this country" (1038). (Asked his grounds for opinion that a great deal of reckless practice of Vivisection is going on at the present time) : "I hear young men who are pupils, or have recently been pupils, speaking of what they have seen in the theatres, lecture-rooms and laboratories of those who profess to teach physiology" (1112).

Dr. HAUGHTON :

"I believe that a large proportion of the experiments now performed upon animals in England, Scotland and Ireland, are unnecessary and clumsy repetitions of well-known results. Young physiologists in England learn German and read experiments in German journals, and repeat them in this country. There is a good deal of that second-rate sort of physiological practice going on" (1874).

Prof. ROLLESTON :

(Asked whether his remark concerning the growth of moral feeling applied to the last few years ?) "It is rather the reverse, I should think, within the last few years. There are eddies in a river which is flowing from east to west, but it is flowing all the same (1339). With regard to all absorbing studies, that is the besetting sin of them and of original research, that they lift a man so entirely above the ordinary sphere of daily duty that it betrays him (in other lines of original research as well as this) into selfishness and unscrupulous neglect of duty (1287). Mr. Skey wrote in his work, 'A man who has the reputation of a splendid operator is ever a just object of suspicion.' . . . Now a person who is operating on the lower animals, who have no friends to remonstrate for them, is very much more likely to give way to such a temptation than a person operating upon human beings who would have friends (1287). If you take up that book of Schiff's, you will find that almost every lecture has some animal sacrificed for it (1343). Dr. Foster told me he had never shewn it (the experiment in the *Handbook* on Recurrent Sensibility) and never seen it himself" (1346). (Asked, "But surely it is put here in a *Handbook* in a mode which would encourage the trying of that experiment ?") "Obviously. I am speak-

ing in vindication of the character of a friend of mine, *but not at all in vindication of the book*" (1347). (Asked, "Then I understand that your opinion about the Handbook is, that it is a dangerous book to society, and that it has warranted to some extent the feeling of anxiety in the public which its publication has created?") "I am sorry to have to say that I do think that is so" (1351).

Prof. HUMPHRY :

"Experiments have to be repeated and confirmed many times before a fact is really established" (635). Thinks that the number of experiments must increase very rapidly if the progress of science is to be kept up" (740).

Dr. RUTHERFORD :

"I should say about half the experiments I have done" (are on animals not under anæsthetics) (2843). Thinks there is "considerable increase" in physiological experimentation (2848).

Dr. GAMGEE, Owens' College :

"I think that Vivisection has been practised almost too little (5383). My lectures to junior students are attended this session by 40 students, those to second-year students by 42 (5384). I may say that we are making great efforts in Owens' College to encourage qualified persons to engage in physiological research ; and for that purpose we have provided a laboratory, and we have a physiological scholarship" (5385).

Dr. CRICHTON BROWN describes :

Forty-six animals sacrificed in trying if chloral were antagonistic to pycrotoxine. "Cases of poisoning by pycrotoxine are of very rare occurrence" (3164, 3168). Twenty-nine animals used in Ferrier's series (3178).

Mr. SCHAFER says :

"A very large number of animals" are used at Ludwig's laboratory. "Hundreds (a-year), if you take animals of all kinds ; of rabbits and dogs, I suppose, more than a hundred (3853), without counting the frog" (3855).

Sir G. BURROWS thinks :

"There have been great abuses in the performance of experiments on living animals (167), and that those abuses ought to be restrained" (158).

Dr. SWAYNE TAYLOR :

"A very eminent (French) toxicologist was in the habit of experimenting on dogs on a very large scale indeed ; and after giving

the poisons—nearly every poison in the list that we know of—he cut into the neck to tie their gullets to prevent the animal vomiting, and of course that must have caused great pain and suffering; and it defeated the object which the toxicologist ought to have in view, because it placed the animal in an unnatural condition. . . . For that reason, in my work on Toxicology, I have not been able to make any use of the hundreds of these experiments which this French physician performed (1171). In Palmer's case, the destruction of sixty animals was really quite unnecessary. It was merely an attempt to overwhelm the evidence for the prosecution by the number of experiments (1197). Putting a frog into water at 40° cent. = 100° Fahr., like putting a warm-blooded creature into 212°, a cruel experiment. I cannot see what purpose it would answer" (1258, 1259). Experiment (p. 108 of *Handbook*) on mesentery of a frog, "a very painful experiment, and I do not see what good purpose it would answer" (1271).

Dr. WALKER :

"Inflammation by chemical and traumatic agents was set up in the joints and in the transparent cornea of the eye by passing a thread through it and establishing a seton. These experiments caused great pain, and the lambs and dogs on which they were performed were unable to rest day or night; and if some ease enabled them occasionally to rest, the experimenter used to exasperate the wounds afresh, and thus make rest impossible (1727). One case of gastric fistula having been established, the posterior half of a living frog was inserted into the aperture leading to the stomach of the dog, while the anterior half, head and legs, protruded externally, and were fastened there until half of the frog was nearly digested away. As the gastric juice gradually ate away the skin, the nerves and the muscles, the frog made desperate efforts to escape by moving its anterior extremities very rapidly." (See Claude Bernard, *Physiologie*, Vol. II. p. 409, 1856.) . . . "He had done the experiment before, and was certain of the results obtained; the repetition before his class was wanton and cruel" (4888). Dr. Walker further described the following experiments: Forcing substances into the stomach of a dog after exposing the gullet and tying it to prevent vomiting; opening the abdomen, tying a portion of the small intestine in two places, opening the intermediate portion, and injecting a noxious fluid into it; starving rabbits till they would eat dead frogs; forcing boiling water into a dog's stomach; boiling frogs; starving pigeons till they dropped from their perches, and then cutting off their anterior or posterior extremities to show that this caused death when the organism was exhausted from want of food. (See *Medical Times and Gazette*, Aug. 18th, 1860, p. 151.) Showed sketch of an experiment from Claude Bernard (*Système Nerveux*, Oct. 1st, 1858, p. 188), to prove the effect of exhaustion on the nervous system. The exhaustion was

brought about by exposing the two largest nerves, nailing the feet of the frog to a board, and depriving it of food. The various stages of exhaustion were tested by an occasional discharge of the electric current on one of the exposed nerves (4888). Dr. Walker says that he has attempted to get into physiological laboratories in England to see what was going on, but found it impossible, and an acquaintance of his was refused admittance. "I could bring forward many cases in which ten, twenty or thirty animals have been subjected to the same experiments and have given in each case the same result, and I consider that a cruel abuse of power (1729). I have seen frogs kept in close jars for months till ulcers formed, and the animals were exhibited by the professor as shewing the evil effects of close confinement (1730). The sketch represents a frog prepared in this way. The two sciatic nerves are laid bare for about half an inch. The animal is then placed in a small trough containing oil or glycerine, and kept *in situ* by nailing its feet. In this state the animals live as long as nature can endure such torture, while the experimenter may apply the galvanic current to the nerves, or otherwise stimulate them, whenever he feels disposed to do so (1729). The purpose was to preserve the nerves from drying up and withering" (1730).

Mr. W. B. SCOTT, M.D.:

Saw at Edinburgh, in the physiological laboratory attached to the University, frogs under urari ripped open, the mesentery placed under a microscope; cannot have been in pain for less than two hours (5192). Refers to a passage (p. 162) of the Handbook, in which a most painful experiment on the tongue of an animal may last for forty-eight hours (5194).

Dr. LANDER BRUNTON:

They (his experiments on cats) are still going on (Dec. 1875) (5729) at his own laboratory at St. Bartholomew's (5730). Are killed at the end of four or five hours (5727). "When I said just now that I used ninety cats, I should have said that was in one series, but I am now at the third series. The number ninety is not the whole that is included in the investigation. I have used a much larger number (5747). For the snake poison experiments I should think I have used about 150 of different kinds—rabbits, guinea-pigs, frogs, dogs, and fowls" (5747, 5748). Asked whether the use of chloroform would have vitiated Dr. Rutherford's experiments on drugs or the liver? "No" (5760).

Dr. HOGGAN:

"This which I hold in my hand is an account which came into my hand only on Saturday from the 'British Medical Journal.' My mere opinion upon these experiments is that they were very cruel, very painful, and as far as I can see they were useless, and not to be depended upon as far as application to man was concerned.

Animals, namely dogs, were kept fasting, in the first place, for eighteen or nineteen hours, a thing that would never be attempted upon the human being upon which cholagogues were being administered. Curari was given, a substance the effect of which on the liver has not yet been examined thoroughly, but we know this, that in almost all glands it increases the secretion very much, and would throw matters into an abnormal condition. The animal has been kept under curari when there was no anæsthetic, no narcotic given; no narcotic, indeed, could be given, for there it would interfere, as a separate drug, with the experiment. Therefore, those animals, from the time that they were placed under curari, were kept under curari eight, seven, six, and five hours, suffering pain in consequence of an operation being performed which opened their abdomen, an operation made to find out the bile duct, and separate it from the other structures which lie with it in the gastro-hepatic omentum. A glass canula is then tied in the bile duct, and the bile drops by means of a tube. All that human beings know is the pain there is when gall stones are passing down the bile duct, and that is known to give excessive torture. Merely a little bit of fat passing down gives us intense pain, and we can form an opinion that to take out the duct, to disturb all these parts, and manipulate it, as has been done, would cause more intense pain. And in that condition the animals were kept conscious and fully sensitive (I have any amount of evidence to prove this if there is any doubt about it), while the experiments were being tried upon them. I say that the conditions were abnormal to such a degree that they could never be applied to men; and that the pain was excessive; and that the experiments were uncalled for, and cruel in the extreme; and I put in a paper by Dr. Rutherford himself, in the 'British Medical Journal' of October 23rd, as evidence of that point. This view of Dr. Rutherford's only forms another of the numerous opposing views on the same question; agreeing on one point only with the committee who sat in the same university, and the professor who was in the same chair before him a few years ago (and under whom I received my tuition) namely, that mercury had no effect on dogs. Nearly the whole medical profession agree that it has a great effect on human beings. So that the only point on which these people agree, after all their cruel experiments, is, that what is applicable to the dog is *not* applicable to man" (3464).*

* Perhaps the greatest blunder committed in these experiments was a fundamental one, which destroyed any vestige of reliance upon them. The design was to learn about the *therapeutic* action of certain cholagogues, while the method employed only showed their *topical* action. In this way most of the acids in the Pharmacopœia would have shown better results as cholagogues, although it would be absurd to administer them as such to man.—G. H.

Dr. RUTHERFORD (examined concerning above experiment) :

("In your judgment, are operations of that description upon the dog to be taken as evidence of what the effect would be on a human being?") Certainly not ; but merely as suggesting what the action would be ; that is all. The experiment must also be tried upon men before a conclusion can be drawn (2966). Last year, for purposes of research, I think I used about forty dogs" (2993).

Dr. JOHN ANTHONY :

"Very frequently men who are in the habit of making these experiments, at all events the French, are very careless of what becomes of an animal when it has served its purpose. The brain is exposed, portions of it are cut or pinched or torn, and then the animal, having served its purpose, is thrown on the floor to creep into a corner and die" (2448).

Dr. Hoggan having produced the French copy of Paul Bert's observations on a curarized dog in the *Archives de Physiologie*, Vol. II., p. 650, 1869, added the following remarks :

"In this experiment a dog was first rendered helpless and incapable of any movement, even of breathing, which function was performed by a machine blowing through a hole in its wind-pipe. All this time, however, 'its intelligence, its sensitiveness, and its will remained intact ; a condition accompanied by the most atrocious sufferings that the imagination of man can conceive' (*vide* Claude Bernard, in *Revue des Deux Mondes*, 1st September, 1864, pp. 173, 182, 183, &c.). In this condition the side of the face, the side of the neck, the side of the fore-leg, the interior of the belly and the hip, were dissected out in order to lay bare respectively the sciatic, the splanchnics, the median, the pneumo-gastric and sympathetic, and the infra-orbital nerves. These were excited by electricity for ten consecutive hours, during which time the animal must have suffered unutterable torment, unrelieved even by a cry. The crowning discovery made, to which the experimenter calls special attention, being, that at times, when thus tortured, *it urinated!* The inquisitors then left for their homes, leaving the tortured victim alone with the clanking engine working upon it, till death came in the silence of the night, and set the sufferer free" (4111).

Mr. JESSE :

"I will now quote from the Edinburgh Medical and Surgical Journal, Vol. LXIII. Art. 1, An Experimental Inquiry into the Pathology and Treatment of Asphyxia, by John E. Erichsen (6453): 'Experiment 9. Three mongrel terriers, A, B, C, were properly secured (6456). . . . One of the jugular veins of the centre dog was

then exposed, and a ligature was passed under it, so that it might be punctured so as to avoid the occurrence of plethora and apoplexy when the carotid arteries of the two lateral dogs were connected with the corresponding vessels of the central one. . . . The central dog began to struggle. . . . The lateral dogs were both alive, but evidently enfeebled by loss of blood" (6458). *Mr. Erichsen* (Commissioner): "Those experiments were made by me, in conjunction partly with Dr. Sharpey, from a grant. We were appointed in the year 1842 by the British Association for the Advancement of Science to inquire into the subject of asphyxia. A grant of money was given by that Association for that purpose" (6459).

(B.)

Extracts of Evidence on Conduct of Students.



A written statement by Mr. JAMES B. MILLS, M.R.C.V.S., was entered in evidence by Mr. Colam as follows :

“ Observing from the daily papers that Mr. Ernest Hart alleges that students do not perform experiments on living animals as an exercise in the prosecution of their studies, I beg to forward to you a summary of my experience in that respect during my college career at Edinburgh. I am a veterinary surgeon, and comparatively unknown, but I feel it my duty to aid your Society in repressing unnecessary experimentation ; surveying the past as I do with much regret, so far as I have participated in the practices which I am now compelled to condemn. At Edinburgh the veterinary students and the medical students frequently associate for pleasure and for study. During my first term I was admitted only to two private meetings where experiments were conducted by students alone ; but in the following term, having become a senior, I was introduced to a great number of such vivisections, and on some occasions operated myself. The experiments were certainly never designed to discover any new fact, or elucidate any obscure phenomena, but simply to demonstrate the most ordinary facts of physiology. Our victims were sometimes dogs, but more frequently cats. Many of the latter were caught by means of a poisoned bait, the animals being secured whilst suffering from the agonies caused by the poison, when antidotes were applied for their restoration. They were then imprisoned in a cupboard at the students' lodgings, and kept there until a meeting could be arranged. Sometimes the students secured their victims by what is known as a cat hunt, that is a raid on cats by students armed with sticks late at night. I am not prepared to say that the object of the students was to commit cruelty, or that there was any morbid desire to witness pain, but I say emphatically that there was no other motive than idle curiosity and heedless, reckless love of experimentation. What, for instance, could justify the following experiment, performed for the purpose of witnessing the action of a cat's

heart? The operator first of all made an incision through the skin of the animal's chest extending from the neck to the belly. The skin was then laid back by hooks, in order to enable the operator to cut through the cartilage of the breast-bone, and to draw his knife across the ribs for the purpose of nicking them. This process is necessary to enable him to snap the ribs and lay the fractured parts back, which also are secured with hooks. It is needless to say that such operation is a most cruel one; but it is only one of several others performed at Edinburgh. Now, the action of the heart is well known, and is one of the first things taught to students of physiology, and can be taught as well without experimentation as with. In a few cases the animals were narcotized, when no suffering was caused either in the process of poisoning or in the after experimentations. The securing an animal for an operation like the above, requires experience and care, and it is fearful to witness the struggles of the animal while this is being done. I desire to exonerate the professors from any participation in the experiments performed by students which were conducted at the private lodgings of students, when none but students were present. I merely write this in order to give my humble corroboration of the statement made in the Memorial, that students are in the habit of performing experiments.—JAMES B. MILLS, M.R.C.V.S." (1687).

On cross-examination, Mr. MILLS confirmed these statements. He said :

"The experiments" (made chiefly on cats and dogs) "had no other motive than idle curiosity and reckless love of experimentation" (4932). All the students (a class of seventy or eighty) assisted more or less at these useless experiments (4942). They were sometimes done in public in the yard of the College (4948). "The habit of doing such things is sure to go on unless a stop is put to it" (4953). He referred to a special case which occurred last winter session. A horse was bought for the purpose of dissection. This animal was subjected during a whole week to various operations, such as tenotomy and neurotomy, &c. (4957). The operations were "very painful" (4960). No anæsthetics of any kind were given (4959). The Principal must have known that this was done within the precincts of the College (4964). The experiments were made "all over the animal" (4966). Another experiment, shared by Mr. Mills, was on a cat, when six students were present—four veterinary and two medical students (5071, 5073). The thorax of the cat was opened to see the heart beating (5074). No chloroform was administered, and the cat died after seven or eight minutes (5082, 5084). A dog, which was first half-poisoned and then restored by an antidote, received "brutal usage." The brains were knocked out by a

hammer (5155). The landlady of the students threatened to complain when they had killed her cat (5158).

The story of the horse was subsequently confirmed by Principal Williams (6033).

Dr. SCOTT :

After describing how he ceased to attend the physiological lectures in Edinburgh on account of the cruelty he witnessed, says that "it did not provoke the slightest symptoms of abhorrence among those who witnessed it." He "never knew an operation cause the least abhorrence to a medical student" (5201). Vivisection, he believes, goes on among students in their own rooms (5238).

Three of the witnesses bore testimony to their sense of the extreme moral danger of suffering young students to witness Vivisections.

Prof. ROLLESTON, of Oxford, remarked :

"Kingsley speaks of 'the sleeping devil that is in the heart of every man,' but you may say it is the lower nature which we possess in common with the Carnivora. It is just this, that the sight of a living, bleeding and quivering organism most undoubtedly does act in a particular way upon what Dr. Carpenter calls, the emotionomotor nature in us. I know that many men are superior to it; but I beg to say that, if we are talking of legislation, we are not to legislate for the good, but for the mass who I submit are not always good" (1287).

Dr. ANTHONY :

Knows himself of instances of young men from mere curiosity carrying on these experiments (2509). Could mention them, but would scarcely like to do so (2510). No anæsthetics are used to diminish the pain of the creatures (2518). Respecting demonstrations by professors to students, Dr. Anthony says : "I believe the more you keep the scenic element away the better. The reason is the existence of a morbid curiosity. There is a morbid curiosity which is known to medical men well with reference to operations of all kinds. There are a certain number of persons who are very fond of coming to see the different operations at the hospitals. I look upon that, and particularly upon the desire of seeing these experiments on animals, as something very, very morbid indeed (2450).

Dr. HAUGHTON :

"I would shrink with horror from accustoming large classes of young men to the sight of animals under vivisection. I believe that many of them would become cruel and hardened, and would go away and repeat those experiments recklessly. Science would gain nothing, and the world would have let loose upon it a *set of young devils*" (1888).

Evidence was also offered of several cases wherein the later judgment and more mature feeling of older physiologists caused them to regret the recklessness of their early vivisections.

Sir WILLIAM FERGUSSON observed that :

"Mr. Syme lived to express an abhorrence of such operations, at all events if they were not useful (1028). His ultimate authority was strongly on the other side (against them), as expressed in a special report of his own (1029). No man perhaps has ever had more experience of the human subject than Mr. Syme, and I myself have a strong opinion that such an expression, coming from Mr. Syme, was a mature and valuable opinion" (1030). (Asked whether his opinion in mature life was much less favourable to these experiments than when he was young?) "Yes, because I had not the same grasp of the subject at that time. I was more, perhaps, influenced by what other people had done, and by the wish to come up to what they had done in such matters; but the more matured judgment of recent years has led me to say to myself now, that I would not perform some of the operations at this present time that I performed myself in earlier days" (1031).

Prof. ROLLESTON stated :

"Haller fell in his later age into a permanent anguish of conscience, which is shown in his epistles, reproaching himself most bitterly for his vivisections (stated by Krug). I should wish to state that Haller was by no means in his dotage at that time—quite the reverse. He was not seventy when he died. That is the striking point; and I think I may say this (but I shall not give the name), that it is within my own personal experience that a person who has a considerable name before the world, and has performed a large number of vivisections in his time, has expressed himself to me as exceedingly sorry that he ever did them—did them, I should say, to the extent which he did" (1290).

And again :

"Dr. Child, who has been a practising doctor and is now an exceedingly useful inspector of health, wrote a book about ten years

ago in which he dealt with this subject. He has said to me distinctly that if he were to write that essay over again, he should recommend legislative interference, which he then thought was not necessary" (1340).

Dr. CRISP says of himself:

"I am rather a penitent on this question. I have been a Vivisector for some time; and as I advanced in age, and I hope in wisdom, I saw fit to alter many opinions," &c. (6157).

* * The above evidence appears on the one hand. On the other, some of the Commissioners, drawing attention to a passage in a pamphlet circulated by the Society for the Protection of Animals liable to Vivisection, entitled, *The Moral Aspects of Vivisection*, concerning the duty of exercising caution in the exhibition of painful experiments to students, elicited from Sir William Gull the opinion that "he had never seen anything affording the remotest justification of the phraseology" of the passage (5502); and from Prof. Ferrier a similar reply, that he should think the passage a "gross libel upon a class" (3350). In each case, it may be observed, the Commissioners overlooked the beginning of the paragraph to which they took exception, and which (had it been read in its place) would have proved that medical students were not accused of having "maleficent tendencies" over and above other young men, but simply of sharing the general recklessness of youth. Unless it is wished to argue that medical students are of a different nature and more delicate moral fibre than their contemporaries in other professions, the charge of "libelling" them, by including them in the same description, seems to fall to the ground. As an instance of hardly fair quotation, the passage is here reproduced—with the preceding and omitted sentence, in italics. It must be premised that the argument of the whole pamphlet, from the first page, turns on the fact, that "the notion of the extreme tenderness and sensibility of early youth, especially in the male human creature," is a mistake; and that "that type of

cruelty which comes of ignorance and recklessness of suffering, and wherein Curiosity, not Malice, is the prevailing motive, is at its worst in adolescence" (p. 1).

*"Young men at the age of ordinary medical students are, as I began by remarking, filled with curiosity and exceedingly empty of sympathy and pity. An eminent physiologist recently bore testimony to his surprise when a whole class of his pupils trooped out of his lecture-room, on purpose to see the assistant kill a creature which he had considerably intended should be despatched out of sight before dissection. 'I remained alone in my chair,' he observed, 'a sadder and a wiser man.' The same keenness of observation, or a memory of their own youthful insensibility, ought to teach all professors of physiology that they are indulging a maleficent tendency which already exists in their pupils' disposition, when they invite mere lads of the Bob Sawyer type to watch their experiments—the more frightful, so much, alas! to some, the more attractive." *Moral Aspects of Vivisection*, p. 10.)*

(C.)

Extracts illustrating the Difficulty of obtaining Evidence.

Dr. HAUGHTON remarked that :

"The practice of vivisection in physiological laboratories is notorious, but difficult to prove, as even those who object to the abuse of the practice (like myself) will not come forward and give evidence against scientific brethren" (1867).

Dr. ANTHONY :

(After stating that he knew of young medical men engaged in vivisection merely from curiosity, being pressed to give some further clue for inquiries, replied) : "I am afraid I must refuse it . . . I could not drag down public opinion on friends or acquaintances who have informed me that they have done things of the sort"* (2524).

Mr. MILLS (asked) :

"Are you prepared to give us the names of the students to whom you refer?"—"No ; I could not do that, because it would be breaking honour with them" (4941).

* A system of terrorism, indeed, almost seems to have prevailed during the past season, whereby the natural objection of honourable men to bear testimony against their colleagues has been perhaps reinforced. The Hon. Secretaries of the Society for the Protection of Animals liable to Vivisection have received from some medical men, for whose assistance they had appealed, letters of which the following extracts seem to throw considerable light on the subject. The first is from a successful physician in the West-end. He says : "Your letter gave me a great deal of pleasure, and I shall be most happy to contribute my mite of — guineas (a most handsome subscription). I do not, however, wish my name to appear as yet, for angry feelings have arisen, and I have many friends among the medical authorities who, I am sorry to say, are on the wrong side." The second example is even more emphatic, being from a gentleman conspicuous in the front rank of the profession, who has already shown considerable moral courage on this question. He says : "I deeply sympathize with your objects and exertions, and wish great success to the Society ; but I am not prepared at present to take any active steps against the opinions and actions of many members of my profession who are advocates of the practices in question."

The Commissioners appear to have been repeatedly foiled in their endeavours to extract any admission concerning the books or proceedings of their colleagues from the physiologists under examination. The following are examples of their ineffectual efforts in this direction, almost recalling the replies of the witnesses at a once famous Royal Trial, *Non sò ; non mi ricordo* ; and justifying Dr. Hoggan's remark, that they "might just as well inquire into Freemasonry" (4288), and Dr. Walker's observation, that "it is impossible to argue the point of humanity with most professional vivisectors. They appear to ignore everything ; they see no kind of abuse, and very often no pain. This is the result of habit and *esprit de corps*" (4909).

Sir G. BURROWS :

Knows of the existence of the Handbook, but cannot say he has read it (205). (Asked about Professor Legg's experiments): "I have been ten years away from St. Bartholomew's. Better ascertain that from other sources" (227). (Asked concerning frogs slit open under curari and kept for two hours): "Does not know if he would justify the experiment ; would not like to express an opinion" (243).

Sir JAMES PAGET :

Knows nothing of the experiments at Florence, Leipsic, Vienna, or Paris (379).

Dr. SHARPEY :

Thinks that abuses might take place, but he does not know it (454). There are people in the country who are hunting a mere Will-o'-the-wisp, and drawing sober people after them (456). Had not read Legg's Report in detail (577).

Prof. HUMPHRY :

Had "glanced" at the Handbook (659). (At Norwich) "I heard that something was going on, and went into the room, but very soon had to leave it. I merely saw an animal on the table, and some one doing something to it. What they were doing, I did not know at all, and I was unable to remain and ascertain" (716). Cannot say positively that he has seen experiments under curari (777).

Prof. WILLIAMS :

Asked concerning the return of animals used for experiment in his College made to the Commission. Had certified that "only frogs" were used, and anæsthetics always used; and on it being proved that horses were experimented upon even by himself without rendering them unconscious, he replies, "I never thought of the horse at the time; the thing really escaped my memory" (6084). The Commission then asked, "And you, I suppose, also forgot what had happened when you sent the next answer, in which it is said that the animals are always rendered unconscious?" "Yes" (6086).

Mr. SCHAFER :

"Never heard of such a thing" as physiologists practising privately in their houses or in private laboratories (3818).

This last observation is not a little surprising, considering the notoriety of Dr. Richardson's experiments at his private residence in London, and those of Mr. G. H. Lewes, who boasts that, "though not a member of the profession, there are few members of the profession who have done more physiological work than I have" (6334).

Dr. BURDON SANDERSON :

"Does not think he can give a guess at all" at the number of animals consumed in a year in Ludwig's or Claude Bernard's laboratories (2744). "Cannot give any idea" of the number of experiments in the Handbook which were painful (2748). Would prefer not answering (a question about Sir Robt. Christison) with reference to the particular case, "because I do not remember" (2753). (Asked about baking animals to death by MM. Delaroche and Berger, to see at what temperature they would die): "Those experiments might, if they were conducted with skill, be on one hand productive of important results, and on the other not be attended with much pain, because an animal, when subjected to a high temperature, very soon comes to a point at which pain ceases. I cannot comment upon the particular experiment, because I do not know it" (2778). (Asked about the choice of M. Dupuy for teaching in the College for the Medical Education of Women, a French vivisectioner, who could not express himself in very good English, when two, an Englishman and a Scotchman, offered themselves, who would not have used vivisection): "I took no active part in the affair at all (2792). All that I did was to express my favourable opinion of Dr. Dupuy as a physiologist, but I did not express any opinion of the others" (2793). (Asked, "Did not Dr. Dupuy resign because the

young women would not attend vivisectional experiments?") "I am sorry to say I cannot tell you anything about that (2794). I know nothing about the matter since that time" (2795). (Asked how he procures dogs for experiments at University College Hospital?) "We depend very much upon our servant, who is a very reliable and respectable man, and who always acts in a straightforward way in the purchase of animals.* I have no precise knowledge as to the methods which are used" (2821).

Dr. CARPENTER:

Asked, "I see an experiment narrated in your own work on Physiology, as to which I should like to know whether you think it was really a desirable one to make. I find this stated: 'The introduction of a little boiling water threw the animal at once into a kind of adynamic state, which was followed by death in three or four hours; the mucous membrane of the stomach was found red and swollen, whilst an abundant exudation of blackish fluid had taken place into the cavity of the organ.' It is not one of your own experiments, but one of which you are there narrating the results. Now do you not think that that might have been argued as one of the most certain inferences from the well-known facts of human experience, and that it was quite an unnecessary experiment to make?"—"That which you have just read is probably taken from a late edition of my book" (5616). "It is the seventh edition, by Mr. Power, p. 129."—"It is not an experiment that I am acquainted with. I have so far given up the study of human physiology, that I have really not kept pace with the inquiries to which that experiment relates" (5617). "Then this experiment was not published by you?"—"No. I would not give an opinion upon it without knowing the purpose of it" (5618). "It is published in your book, but not by you?"—"Not by me" (5619).

With respect to foreign physiologists, it would appear that their own accounts of their proceedings, offered to the public in the newspapers and those confided to the more select circles of their scientific readers, vary to a startling extent. Prof. Rolleston exhibited to the Commission the following excerpts from Prof. Schiff's well-known Letter, and from the same gentleman's Lectures:

"Prof. Schiff says, in a work of his (*Leçons sur la Physiologie de la Digestion*, Tom. I. p. 291, dated 1868), that when dogs come

* Why was this "reliable man" not examined?

into his laboratory he finds it necessary to cut two of their nerves (the nerves of vocalization). . . . 'Je suis obligé de faire subir cette dernière opération à beaucoup de nos chiens fraîchement arrivés au laboratoire pour les empêcher de se livrer à des concerts nocturnes trop bruyants et de discrediter ainsi les études physiologiques auprès des habitants du quartier.'* Further, in a letter of Prof. Schiff's in the *Times* of Jan 7th, 1874, he distinctly says that the reason that the inhabitants of the district were not so disturbed as that French quotation says they might have been, was, that there were no dogs in pain in his laboratory" (1287).

* As an accompaniment to the above, we extract the following from Claude Bernard's *Liquides de l'organisme*, p. 40: "We cut out the kidneys from a bull-dog. . . . Next day, twenty-four hours after the operation, the dog, without being enfeebled, appeared dejected, respiration was impeded and sighing; he had vomited during the night; he refused all food and avoided movement. The dog appeared to suffer and at times cried out; in order that his cries should not disturb the neighbours, we applied a muzzle pretty tightly. When during the day we returned, we found the dog lying dead, his muzzle bathed in a foetid fluid which he had vomited. The muzzle had hindered the expulsion of the vomiting and caused the animal to be suffocated by it."

(D.)

Extracts of Evidence on Legislation.

Sir J. WATSON, Bart., M.D., late President of the Royal College of Physicians :

Thinks that persons who should prosecute such experiments ought to be such only as might be licensed by some high authority to do it (107). Issuing of licenses ought to be vested in some high authority, such as one of the Secretaries of State, properly advised by a responsible officer" (111). Would have "an Inspector of physiological laboratories, as we now have an inspector of dissecting-rooms (116). A general License permission, not for each experiment or series (118), subject to revocation if abused (119).

Sir G. BURROWS, Bart., M.D., President of the Royal College of Physicians :

Thinks "there ought to be somebody to advise him (the Home Secretary) having functions somewhat analogous to the Inspector of Anatomy who should send in a written report" (167). "I think that there should be some officer or person appointed who is a fit person, good anatomist, and a physiologist himself, who is competent to form an opinion, and that his opinion should be given to the Secretary of State, and that this individual should be a permanent officer. I think it would never do to leave it to the Secretary of State, unless he had good information to guide him" (172). Licensed places (173).

Sir JAMES PAGET, Bart., President of the Medical and Chirurgical Society :

The Resolutions of the British Association have received his entire approval, and that of Darwin, Huxley, Owen, Gull, Jenner, &c. (268). Where courses of experiments are to be made it ought to be with the consent of a Committee of medical officers and lecturers, or even some of the Governors of the hospital (320 and

326). No objection to Inspector, as of anatomy. "If there is any legislation at all, I should think it must take that form" (328). Thinks public opinion sufficient without legislation (341).

WILLIAM SHARPEY, M.D., LL.D., Secretary to the Royal Society :

"Who is competent to inspect and say what is a scientific result or not? You must trust to the persons that you permit to make these experiments (581). If you come to the question of legislation about it, I think that such a person might be authorized or licensed to make these experiments, and when the experiments were painful and not done under anæsthetics, that he should keep a record of them, and be prepared to report what he had done; and then the authority granting the license might, from their own knowledge and by consultation, restrain him from prosecuting objectionable experiments" (583).

G. M. HUMPHREY, Professor of Anatomy in the University of Cambridge :

Thinks that "by limitations and restrictions you to some extent take away responsibility and mar good feeling" (672).

H. W. ACLAND, M.D., F.R.S., Regius Professor of Medicine in the University of Oxford :

"I should much doubt whether the best judges of what vivisections should be performed would not be either the heads of the chief departments of science, or some scientific body, or somebody nominated by them for the purpose (930). If the Commission collects evidence which shows that the scientific men of England are careless and wanton, then I say that we deserve the humiliation of being looked after by the police, but I think it will not turn out so" (948).

Sir WILLIAM FERGUSSON, Bart., Serjeant Surgeon to the Queen :

"There might be an opinion expressed on the subject by the great authorities in the country, but I should be very reluctant to coerce scientific men to give up their investigations" (1057). Thinks it would be a most offensive thing to men of science in this country if a particular officer should be directed to attend on every occasion when such experiments were made (1058). Thinks the suggestion of licensing very questionable (1061). It has occurred to him, as regards large institutions, that it might be a very good rule to make, to put them under the obligation to

make a public report of the experiments they were performing (1142). Has thought that "it would be quite possible that you should have an inspector of these experiments, just as they have an inspector of anatomy so they should be able to send men who might say, 'I should like to see the number of dogs and rabbits or cats about this place.' I think that would have a very wholesome effect" (1145).

ALFRED SWAYNE TAYLOR, M.D., F.R.S., Lecturer on Medical Jurisprudence and Toxicology at Guy's Hospital :

Thinks "that legislation to be effectual should in some way or other define the animals or class of animals" (to be used for vivisection), and that a person might be appointed to aid the opinion of a magistrate in deciding a case (1185). If Licenses are granted, as under the Anatomical Act, it would be very easy to secure a power of control over experiments (1186).

GEORGE ROLLESTON, M.D., Linacre Professor of Anatomy and Physiology at Oxford :

Thinks "the present wholesome condition of public opinion is this, that for class demonstrations limitations undoubtedly should be imposed, and that those limitations should render painful experimentations illegal before classes. I am loth to say anything about interference with original research, firstly, because I think it impossible so to interfere with it (1291). My impression of the English nation is that it is a law-abiding nation, and that a pronunciamiento on the side of carefulness, even as regarded private practice of vivisection, would have its effect (1303). . . . I think so, on the principle that Mr. Froude lays so much weight upon, about embodying the public opinion in the permanent form of legislation. It, so to say, crystallizes it into a solid basis, which serves as a stepping-stone in the evolution of moral sensibility upwards (1304). I think, in addition to a Register, Inspection of some kind is a thing which is desirable" (1319).

JOHN SIMON, F.R.S. (Medical Officer of the Privy Council and of the Local Government Board) :

"Supposing that (a construction he has offered) to be a right construction of the Act (12 & 13 Vict., c. 92), I do not see what more should be wanted ; but if that is not a right construction of the Act, I should not myself see the least objection to a statutory declaration in some such sense" (1386). Thinks that "it would be a sham security to limit these experiments to special places and persons, and subjecting them to inspection, compared with that

which already exists (1488). On the contrary, if it were so constructed as to be a real security, it would probably interfere with work to a degree that would oblige workers to take refuge in other countries (1489). . . . You are proposing that physiologists shall be treated as a dangerous class, that they shall be licensed and regulated like publicans and prostitutes" (1491). Thinks Playfair's Bill "would give facilities for the persecution of physiologists. The Commission will recognize how easy it would be, if this Bill became law, for some one to move in Parliament for a return, under section 5 of clause 3, with regard to all experiments which had been made; that is to say, to convert the law into means of popular attack on individual physiologists" (1509).

MR. JOHN COLAM (Secretary of the Royal Society for the Prevention of Cruelty to Animals) handed to the Commission a Bill prepared by the above Society, and stated:

The 9th section of the Bill provides "that no person shall perform, or cause to be performed, or take part in performing, any vivisection upon any animal without having first of all subjected such animal to the influence of an anæsthetic, so as to render it wholly insensible to pain." The next section provides "that no person who shall perform, or cause to be performed, or take part in performing, any vivisection upon an animal so subjected as aforesaid, shall omit to destroy such animal before the effect of the anæsthetic ceases" (1526).

DR. ARTHUR DE NOE WALKER, formerly Military Surgeon, now practising Physician in London:

"I would propose that no person should be allowed to perform experiments on living animals without legal permission from some competent authority. Exceptions should be made in forensic cases where the analyst might find it necessary at once to test suspected matter on some animal. Secondly, the number of animals allowed yearly to each licensed experimenter should be limited. I think if this is not done, it will invalidate any other restriction that can be thought of. The third provision would be, that every licensed experimenter should send in every year to the same competent authority two returns, one showing the nature of the experiments he intends to perform, the other the results obtained by those experiments. This return should also show whether anæsthetics were used, how long the animal remained insensible, and how long it was kept alive (1729). Finally, vivisections for demonstrations should be entirely abolished (1731). The legislative means which I suggest would rather promote science than the contrary. A great

many experiments which are performed in one laboratory are not known in others ; and if there were returns constantly sent in, one experimenter would easily compare his experiments with others, faults would be detected, and the number of victims much diminished (1735). Probably no control would be efficient that was not the result of the united judgment of a Board composed of physiologists, an equal number of physicians, surgeons and pathologists ; and even a chemist might give valuable suggestions" (1773). (Asked, "You incline to institute a sort of Board of Control for scientific experimentation?") "Yes ; on every kind of experiments on living animals" (1774 ; see also 1796, 1797, 1800).

LAWSON CAPE, M.D., formerly practising Physician in London :

Would not allow vivisection in the case of highly organized animals (1822). Ought to be guarded by certain regulations (1826).

Rev. SAMUEL HAUGHTON, M.D., Fellow of T.C.D., D.C.L., F.R.S., Medical Registrar of the School of Physic in the University of Dublin :

Objects to the provision in Dr. Lyon Playfair's Bill authorizing the Presidents of the Colleges of Surgeons or Physicians to give certificates to vivisectors. "I have no confidence in those gentlemen at all." Also to clause 8, wherein the license under the Act shall extend to assistant. "It would introduce the practice of vivisection among the students ; and I believe it is intended to be the result of it in any Medical School, that the person holding the license should really be very lightly responsible for what was done (1881). It occurs to me that if we availed ourselves of the services of the Inspector of Anatomy as one of two inspectors, and let the public appoint another, we should have every guarantee that is necessary. If the Royal Society for the Prevention of Cruelty to Animals would not undertake it, I believe that local zeal would undertake it, and would appoint a colleague who should be elected by the town, who would be a lay person, and who would protect the public feeling, which is as much entitled to be considered as the feelings of animals in the question (1886). I wish to express that opinion very strongly, that the control (of vivisectional experiments) should be partly under the direct influence of public opinion" (1969).

Mr. GARROD, Prosector to the Zoological Society :

Thinks that original research in the hands of competent persons should be left entirely unfettered (1981), and does not feel that any

restriction is required in the direction (of incompetent persons), because the existing law . . . would include all cases (1982).

P. H. PYE-SMITH, M.D., Assistant Physician to Guy's Hospital :

"Should have thought that until abuses were proved, legislation was unnecessary;" and is "not aware of any necessity for it" (2042).

F. W. PAVY, M.D., F.R.S., Physician to Guy's Hospital and Lecturer on Physiology :

Felt, on looking through Dr. Playfair's Bill, that it would not restrict the course he was himself pursuing (2185).

J. BURDON SANDERSON, M.D., F.R.S., Professor of Human Physiology in University College, London :

Is willing, speaking generally, to coincide in the proposals made by Dr. Playfair to the House of Commons (2293). Would like to make this statement with reference to legislation in general : that so far as the institutions to which he has referred (like those of Guy's Hospital and Trinity College, Cambridge) are concerned, legislation is certainly not necessary, because there is no influence which legislation could exercise of a beneficial character which is not already exercised by the organization under which they are placed (2311). Cannot see any objection to the principle of a License, but cannot see that any Inspection is possible. Thinks, as regards keeping a list of the animals, that it would be impossible to carry it out with any good result (2352). Does not object to publicity, but to an Inspector (2356). Thinks that legislation is not necessary with relation to organized physiological research, and knows no reason for thinking it necessary on any other ground (2687).

MICHAEL FOSTER, M.D., F.R.S., Prælector of Physiology in Trinity College, Cambridge :

Has no objection to legislative interference. Only disagrees with Dr. Sanderson so far as he thought it desirable or necessary (2321). Objects to legislation, not on the ground of any mischief that reasonable legislation would introduce, but that it is in this country unnecessary. Thinks that there would be even for physiology some advantages in legislation (2348).

JOHN ANTHONY, M.D., formerly Assistant to Sir Charles Bell :

Thinks experiments on living animals should be permitted in the form of giving a License to properly qualified persons, with stringent

regulations attached, involving facility for inspection by proper officials. That no public demonstration of vivisectional experiments should be permitted (2444). That it should be one of the conditions of the licenses that the laboratory should be open at all times for inspection by proper officials, persons who would not care about the scientific work, but simply take care that the thing should be carried on in conformity with regulations laid down (2453). Would make the license annual, or for some definite period (2507).

WILLIAM RUTHERFORD, M.D., Professor of the Institutes of Medicine and Physiology in the University of Edinburgh :

Considered Dr. Playfair's Bill "extremely objectionable" (2877). "Should much have preferred Lord Henniker's Bill if there had been legislation on the subject" (2882). Was once under the impression that it had been "drawn up by the Anti-Vivisection party" (2873), at which time he considered that "it would have made no essential change in the conduct of the physiological department of this University. On reconsidering the Bill he considers it an "inconvenient thing" for the power of granting a license to be vested in the Secretary of State. Would not object to vest that power in the Councils of the Royal Societies or of the Colleges of Surgeons and Physicians, under whose jurisdiction the Inspector of Anatomy might act (2874), provided that his reports are to be submitted to them and not to the Secretary of State (2883). Would not object to a record of all experiments (2886).

WILLIAM TURNER, M.B., Professor of Anatomy in the University of Edinburgh :

Has difficulties in the way of legislation in the matter. . . In what sense are you to employ the words "live animal"? To give a definition of life has been a difficulty from the time of Aristotle (3048). Vivisection is not exclusively confined to men of science; lambs' tails are cut off, &c. (3050). There is another difficulty, that when legislative checks are enacted, the progress of discovery in science is likely to be impeded (3055), and thinks it would be class legislation of a most offensive and objectionable kind (3102).

JAMES CRICHTON BROWNE, M.D., Head of the West-Riding Lunatic Asylum :

Thinks Inspection would be impracticable, but not onerous, or in any way likely to interfere with the progress of science in his laboratory (3219), and would wish to have some legal authority for what we might be doing (3220). A legal remedy which would secure

him against being placed in an unjust position would be acceptable to him (3224).

DAVID FERRIER, M.D., Professor of Forensic Medicine in King's College :

Thinks that any legislation that would retard physiological research would be a discredit to this country (3252). Would say "that it would be so extremely difficult to ascertain or to determine who were qualified, or to frame a standard of competency to make original research, that I believe legislation in that direction would be injurious" (3253). Has no objection to some restriction being put upon unqualified persons experimenting in this way, provided a sound criterion be established of the ability to perform experiments (3262). Should certainly object to inspection of any kind on his experiments. "I think it is possible that the method which has been suggested of giving a license to those who are qualified to perform experiments, a license simply, without any inspection or the necessity of keeping a record, would not interfere to any great extent with the development of original research" (3272).

GEORGE HOGGAN, M.B., formerly Demonstrator of Anatomy at Surgeon's Hall, and Teacher of Anatomy at Minto House, Edinburgh :

Is not prepared at present to advocate the total abolition of Vivisection (3436). "The conditions which I should like to see if it continued, would be those in which all that was done might be made amenable to public opinion, so that all that was good in vivisection might be utilized, and all the abuses connected with it might be put a stop to" (3439). (In reply to the request to state in detail what he would recommend should be done, read as follows): "First, all secret or private physiological experiments involving the infliction of pain or wounds upon animals to be absolutely forbidden by law under heavy penalties, involving imprisonment. Secondly, all physiological experiments necessitating wounding or infliction of pain upon animals to be conducted in a suitable hall fitted with the necessary tables and apparatus for practising vivisection. The area of the hall thus provided to be overlooked by a gallery, or galleries, into which the public could have unrestrained access by separate doors. This would offer the following advantages. (a.) All experimenters claiming to be humane in their practice of vivisection would thus enable the public to form a correct estimate of their pretensions. (b.) As the public would not be admitted into the area, there could be no inconvenience to experimenters from crowding round tables or acts of mistaken zeal or feeling. (c.) The public mind and conscience accused at present

of exaggerations would thus be afforded an opportunity of calming and rectifying itself, if no cruelty or other abuses were to be witnessed. (d.) Any abuse or act of cruelty might be witnessed by the public, and the guilty party prosecuted and punished at their instance. (e.) The animals on which experiments were being tried would be protected from cruelty by the presence of the public. (f.) Experimenters would be forced to be on their guard against allowing any cruelty or even the appearance of it. They would thus be rendered more thoughtful of the sentient being under experiment, and would therefore resort to vivisection only when such seemed necessary or advisable for the elucidation or proof of some important fact. (g.) Any person might have the power of experimenting there, without special license or qualification, under the charge of the superintendent of the institution, who, except on the proof of a conviction for cruelty, could refuse admission to none while any table or place remained vacant or unused. (h.) Any student of medicine wishing to make a speciality of physiology could acquire a useful knowledge of this science from the gallery, whence he could watch every step in the operation of preparing for and performing the experiment. This is an advantage which cannot be obtained in the best organized classes in the world, and is of primary importance. (i.) Any of the students seen in the gallery might be asked to assist in the area at any experiment by any of the operators. The number of such assistants to be limited (say to five), so as not to inconvenience neighbouring experimenters, or permit the place to be converted into a class-room for witnessing demonstrations upon animals. This measure would benefit the three parties, as an extra assistant might enable the anæsthesia to be kept perfect, while by closer observance the student would learn better, and the operator would have his hands set free for his more special part. (j.) For a like reason, the number of persons in the gallery ought also to be limited, say to ten, of whom only five might be medical students; all admission therein to be by tickets issued gratis by the superintendent to all respectable persons above the age of eighteen who might apply for them, something like a reading ticket for the British Museum. (k.) For the benefit of the students, or the information of the visitor, a placard containing notes of the case to be hung in the gallery opposite the experiment to which it refers. The anæsthetic, the course of operation, and the design aimed at, to be fully stated therein by the operator. This card to be held as the card giving admission to the operator into the area, and to be retained and filed afterwards by the superintendent; like the card case hung over a patient's bed in some hospitals. (l.) It has been objected that no discoveries in science could be prosecuted in such a place, as they would become known before the discoverer

published them, and thus he would lose the coveted fame; and that consequently such discoverers would be discouraged from using the institution. This is possibly the best argument that could be offered in favour of such a plan, as, while habitual or dilettante vivisectors would be discouraged, all earnest workers for the good of humanity would not hesitate to work openly in it at any experiment necessary to establish some important or beneficial truth. (*m.*) Animals on which it is intended to study the course of disease shall after inoculation, or operation in the hall, be retained in premises connected with and attached to the institution. These shall also be freely accessible to the public. No animal suffering from very painful wounds to be allowed to live, and if in the course of any induced disease the animal appears to suffer greatly, it shall be destroyed at once; and any neglect to do so shall constitute an act of cruelty for which the owner primarily—failing whom the superintendent—shall be held responsible. (*n.*) Any person or corporate body to be at liberty to form or build such an establishment, for which, after it has been inspected by an officer of Government, a license or permit gratis, or at a nominal fee, shall be issued, giving power to keep open the same under charge of a superintendent, who shall be held responsible for any irregularity or cruelty which may occur, along with but after the person committing the offence. He shall grant by the afore-mentioned card admittance to use the area to any respectable person, and retain the same afterwards as a record of the operation. Admission to be granted on payment of certain stipulated fees for hourly, daily, or weekly use of the place. (*o.*) In this establishment all wounding of animals calculated to cause much pain under normal conditions to be effected only while the animal is fully under the influence of some anæsthetic or narcotic, and thereby rendered insensible to pain. You will observe that this does not include the whole of an experiment, but only that portion in which pain is being inflicted by some preliminary operation. (*p.*) Curari, or its supposed physiological analogues, is never to be used during wounding of or upon wounded animals during any experiment. (*q.*) Lastly, experiments should be strictly limited to the less sensitive and intelligent animals, and it should be prohibited to vivisect horses, monkeys, dogs, and cats. I recommend no special alteration in the law regarding Cruelty to Animals" (3441). "If there be a strong objection on the part of physiologists to allow any restrictions to be laid upon them, then I would take total abolition as the next best thing" (4063). "If a license was to be looked upon as a restriction, without being a protection to animals, that should be laid aside" (4082). "I am of opinion that demonstrations in class by means of painful experiments on animals should be absolutely forbidden by law under heavy penalties. Then, further, I should like

to express an opinion on the question of limiting permission to perform painful experiments in connection with new discoveries only. I think this would be unsatisfactory, because while theoretically it would seem to be a safe precaution, practically it would be of no use whatever, as any experiments might be made to bear the desired interpretation" (4244).

JOHN GRAY MCKENDRICK, M.D., Lecturer on Physiology in the Extra-Academical School of Edinburgh :

Scarcely sees how any legislation would have any distinct beneficial effect (3955). Does not see any great objection to licensing persons, not special places nor special investigations (3957, 3958). Has a private laboratory (3960). Would certainly object to legislation which should compel every person engaged in physiological research to go to some public and licensed laboratory for the purpose of making his experiments (3963).

JOSEPH LISTER, M.B., Professor of Clinical Surgery in the University of Edinburgh :

Should feel it a very doubtful matter whether any legislative interference could take place that would not hamper in an undesirable manner such investigations (4299). Thinks legislation would be not only superfluous, but personally should feel it as a sort of blot upon our profession, as implying that such legislation was necessary (4345). No advantage can possibly be derived that he can see by the public witnessing these things (4348). Cannot imagine what object there would be in excluding the domestic animals, dogs, cats, and horses, from such experiments (4421).

ROBERT McDONNELL, M.D., Surgeon to Steeven's Hospital, Dublin :

Sees immense difficulties in practical legislation (4475). Thinks that the position of the physiologists would be improved by legislation. Would, as a physiologist, like some legislation to save the physiologist from the outcry that has been raised by misstatements and exaggerations. Thinks it would be desirable for the physiologist to have the protection which would arise from disarming the suspicions of the public (4476). Does not think that either of the two Bills brought forward last year would very well meet the case (4477). Finds great difficulties with regard to a system of inspection—between inspection being a mere sham, and being of a kind to interfere with the progress of science (4478).

JOHN CLELAND, M.D., Professor of Physiology and Anatomy, Galway :

Thinks no further restraint is required than that provided by the

Cruelty to Animals Act. Cannot see any reason for legislation on the subject (4620). Did not know the Cruelty Acts only apply to domestic animals (4621). Sees no objection to widening the present Act to include all mammals (4625).

CHARLES DARWIN, Esq. :

Cordially approved of the Resolutions of the British Association in 1871 (4664). Took some part in the steps preparatory to Dr. Playfair's Bill ; but the Bill did not exactly express the conclusions at which, after consultation with several physiologists, we arrived ; but approved it in the main (4665).

FRANCIS SIBSON, M.D., F.R.S., Consulting Physician to St. Mary's Hospital :

Is not fond of restrictions. Thinks that in this country we get on far better by being governed by our own conscience, our own sense of what is right, and public opinion. Thinks those are far better rules than any minute rules that may be laid down, such as would interfere, perhaps, with some of the happiest lines of research that have ever been undertaken, and put a stop to most important investigations (4690). Does not object to the Act for preventing Cruelty to Animals (4692). If there were abuses, would not object to a law for their correction (4693). But is not at all of opinion that such abuses do exist to a sufficient extent as to require legal interference (4694). If any legislative measure were adopted which would seriously impede the demonstrative teaching of physiology, he would consider it an evil, a turning back of the student into the old paths which we now feel to be no longer tenable (4711). Has never found any English physiologist advocate the doctrine that the animal should only be anæsthetized for the physiologist's own convenience, irrespective of the relief of suffering to the animal (4718). If such a doctrine obtained any footing in this country, would merit repression by legislative interference. If it did come, it must be repressed (4720).*

JOHN MALLET PURSER, M.D., Professor of Institutes of Medicine, Trinity College, Dublin :

Considers the matter a very unsuitable subject for legislation (4808). Thinks teachers of physiology are the most competent judges of what should be done (4810). Has an impression that all professors will be humane and all students will abstain from experimenting ; and his impression on that point is so strong, that he thinks legislation would be quite unnecessary, and would do more harm than good (4825).

* Vide Evidence of Dr. Emanuel Klein, pp. 51 seq.

ARTHUR GAMGEE, M.D., F.R.S., Brackenbury Professor of Physiology, Owens' College, Manchester :

Thinks that in reference to physiological laboratories there is no need for any legislation. Is, however, on principle, quite prepared to say that it might be advisable to restrain the possible performance of vivisection by persons not competent (5376). Thinks that students should be entirely disqualified from performing any experiment (5378). Can conceive that a system of licenses could be introduced which would not be prejudicial to science, if no vexatious interference were exercised (5381). Asked, "Whether, if some regulation were proposed which should, without limiting the progress of science and the efforts of competent scientific people, restrain the performance of operations on living animals by incompetent persons for no definite object and without proper precautions, there would be any sentiment on your part that you had been affronted by such a regulation?" Answers, "Not at all" (5425).

GEORGE JAMES ALLMAN, M.D., F.R.S., Emeritus Professor of Natural History, Edinburgh, President of the Linnean Society :

Thinks Dr. Lyon Playfair's Bill on the whole a good one ; that there are some points on which it might be improved ; but thinks it very much better than that brought in by Lord Hartismere (5440). Attaches importance to keeping a register of all proceedings with regard to living animals (5441). Says that he should almost feel inclined to suggest the appointment of a Board of Control. Thinks that if physiological experiments are tried in licensed places, inspection should be allowed, and that a Board should be appointed with a power of visiting and seeing that there was no abuse (5457).

Sir WILLIAM WITHEY GULL, Bart., M.D., Consulting Physician to Guy's Hospital, late Fullerton Professor of Physiology at the Royal Institute :

If legislation were calculated to hamper either scientific inquiry or the pursuit of science, would think it most deplorable (5472). "Even if it were clear of that objection, I should see a moral and very serious objection. It would imply that the scientific men of this country and the students of science required legislation, which I deny (5473). I have thought a good deal on the question how far any possible legislation would not throw a shadow upon the fair prospects of science, and I feel this, that as all legislation must hamper and must hinder, which all legislation is intended for, because it is intended to restrict, such restriction where it was necessary might fairly, and might I am sure, as regards public

morals and public decency, be left to the high sense of the teachers or the students of science and the public ; that whatever legislation could do would be repressive, and would be a distinct assumption that there was a public scandal in a certain way, limited more or less, but still a public scandal calling for legislation ; because legislation could only be called for if there were such a scandal, and the prevalence of it were sufficient for legislation. Now I must say that with my personal knowledge and long experience, both in public and private life, from living at a hospital for fifteen years, being acquainted with one of the greatest schools in this country, having been occupied with physiology for fourteen years of my life, and having a full acquaintance with medical men and medical students, and with the difficulties that science has to contend against, and looking at the whole subject, I should regard any legislation as repressive or hampering, or as casting a shadow where it is not deserved. There may be isolated cases of abuse, but I doubt even that ; I doubt whether anybody but a madman would seek to inflict pain for the pleasure of it ; I do not know of such cases. I should regard it as an evil day for this country if the Parliament of England should think itself called upon to interfere (5475). I should regard it as throwing a shadow, as I have said, upon our fair fame, which fair fame should not, I think, receive such a blot. Moreover, I think there is such a tendency to ignorance ; there is such a tendency to be satisfied with the knowledge we now have ; there is such a desire to be governed by what I should call weak sentiment—I do not speak unfairly or unkindly, but there is such a desire, that I am sure that even the mildest legislation would do harm to the progress of science ; not to the progress of science in a higher sense, because I think it would not hinder the scientific men of this country from pursuing their inquiries ; but I think it would prevent the spread of scientific knowledge amongst students, who are already too glad to get their knowledge out of books" (5476).

WILLIAM BENJAMIN CARPENTER, C.B., M.D., Registrar of
London University :

As far as he understood the details (of Dr. Playfair's Bill), there would be, to his apprehension, very grave difficulties in working it effectually. For instance, he could not see how it could exclude or take cognizance of the performance of physiological experiments in private houses, or how it was possible to draw any definite line between the performance of an experiment that no sensible person could object to, and the performance of a cruel and painful experiment" (5594).

PETER DAVID HANDYSIDE, M.D., F.R.S.E., Teacher of
Anatomy in the Edinburgh School of Medicine :

"Not at all opposed to legislation (5938). Would suggest that a system of Licensing would afford the general public 'ample security that the practice of vivisection is nowhere being carried on to any objectionable extent.' And the operation of that might be, firstly, that certain students and registered practitioners wishing to conduct *original* experiments *only*, should be licensed; secondly, that teachers of anatomy, surgery, and physiology may be free to repeat such an essential experiment as that upon a frog's foot, showing it once to each of their classes; and also be free to conduct, *in private*, any original experiments under anæsthesia, where anæsthetics can properly be used. Then the mode of licensing should be two-fold. Firstly, two laymen, such as justices of the peace, I think, should be required to say, 'We consider this party and these premises' (I would register both the individual and his premises) 'a proper person to be entrusted with the performance of vivisection for original experiments, or for teaching purposes, and a proper place for that purpose.' Secondly, to ensure that the experiments shall be original, there should be a certificate from a public teacher of anatomy, physiology, or surgery in a school of medicine, or in the medical faculty of a university, to testify that 'To my certain knowledge A.B. is a fit and proper person to practise vivisection under the statutory regulations' (5940). Would have two justices of the peace. Thinks laymen should be conjoined with a professional expert in order to allay public disquietude (5941). Thinks it well that lay magistrates should represent the general public. Every teacher of anatomy must possess the Home Secretary's license, countersigned by two justices of the peace; and not only is the teacher licensed, but the place also where he means to practise anatomy (5942). His plan includes three inspectors; one for Scotland, one for England, and one for Ireland (5943). Thinks we require to have for inspector an experienced practical surgeon, anatomist, or physiologist. Thinks these are the only three who usually perform such experiments (5944). Would give the inspector power to see that the Act is properly carried out. This power would run parallel to that of the inspector of anatomy. His duties are to see that there are no bodies dissected except those that are obtained according to the provisions of the Anatomy Act of 1832; that no one shall offend against the provisions of that Act, and that the Home Secretary is furnished quarterly (say, in this case, half-yearly) with an official return (5945). Thinks that one inspector for each division of the kingdom would be sufficient for this purpose of licensing the practice of vivisection" (5948).

EDWARD S. CRISP, M.D., practising Physician in London :

Thinks that with regard to our hospitals a committee should be formed at each hospital, who should regulate and control these matters, and that all useless experiments on animals oft repeated should be done away with (6157).

JAMES MADEN HOLT, M.P. :

Says, "I come to the conclusion that Parliament would do well to abolish the practice altogether, and forbid it under heavy penalties" (6176).

GEORGE HENRY LEWES, Esq. :

"Would look with great jealousy upon anything like a definite restriction (6343).

GEORGE RICHARD JESSE, Esq. :

"Any scheme for permitting and then 'regulating' scientific cruelties, the Society for the Abolition of Vivisection deems to be doing evil in the fallacious hope that good may come; and it denounces strongly all legislation that will license cruelty under whatever pretence, or repeal in any degree the Magna Charta of Animals, 12 & 13 Vict., c. 92; as to do so is palpably protecting the wrong-doer, and actually diminishing the protection to the animal creation which the existing laws of England afford. The regulation by law of cruelty is an unjustifiable and retrograde movement. It states as its conviction that the present time is premature for legislation, inasmuch as the nation is but slightly informed of the existence, extent and nature of vivisection" (6475).

For convenience of reference, and to afford the reader a bird's-eye view of all the more important legislative plans before the public, the Committee here append the chief provisions of the two Bills introduced last Session into Parliament.

The following are the chief provisions of the Bill introduced in the Session of 1875 into the House of Commons by Dr. Lyon Playfair, Mr. Spencer Walpole, and Mr. Evelyn Ashley :

1. Save as herein-after mentioned, no person shall, for any purpose whatever, make an experiment causing pain, or of a nature to cause pain, on any live animal.

Any person acting in contravention of this section shall be guilty of a misdemeanor, or shall be liable, on prosecution before a court of summary jurisdiction, to a penalty not exceeding *fifty pounds*, or imprisonment for a term not exceeding *three months*.

2. Any person, for the purpose of new scientific discovery, but for no other purpose, shall be permitted to make an experiment on a live animal of a nature to cause pain notwithstanding this Act and the Prevention of Cruelty to Animals Act (passed in the twelfth and thirteenth years of Her present Majesty, chapter ninety-two), provided that the following conditions are complied with :

- (1.) That the animal shall first have been made insensible by the administration of anæsthetics or otherwise, and shall continue to be insensible during the whole of such experiment ; and
- (2.) That, if the nature of the experiment be such as to seriously injure the animal, so as to cause to it after-suffering, the animal shall be killed immediately on the termination of the experiment.

3. Nothing in this or in the Prevention of Cruelty to Animals Act contained shall be taken to prohibit any person holding a license, as herein-after provided under this Act, from subjecting any live animal to an experiment without the use of anæsthetics, provided that in making such experiment the following conditions are all complied with :—

- (1.) That the experiment is made for the purpose of new scientific discovery, and for no other purpose ; and
- (2.) That insensibility cannot be produced without necessarily frustrating the object of the experiment ; and that the animal should not be subjected to any pain which is not necessary for the purpose of the experiment ; and
- (3.) That the experiment be brought to an end as soon as practicable ; and
- (4.) That if the nature of the experiment be such as to seriously injure the animal, so as to cause to it after-suffering, the animal shall be killed immediately on the termination of the experiment :
- (5.) That a register of all experiments made without the use of anæsthetics shall be duly kept, and be returned in such form and at such times as one of Her Majesty's principal Secretaries of State may direct.

4. Any person desirous to obtain a license under this Act may apply for the same to one of Her Majesty's principal Secretaries of State. Such application shall be in the form set forth in the Schedule to this Act, and shall be signed by the applicant, and shall be accompanied by a certificate in form set forth in the same

Schedule, and signed by one at least of the following persons ; viz., the President of the Royal Society, the Presidents of the Royal Colleges of Surgeons in London, Edinburgh, or Dublin, the Presidents of the Colleges of Physicians in London, Edinburgh, or Dublin, and also by a professor of physiology, medicine, or anatomy in some university in Great Britain, or recognised by the Colleges of Surgeons and Physicians aforesaid.

Provided that if the applicant be a professor or lecturer of or in physiology, medicine, anatomy, or surgery in any university in Great Britain, or in any college incorporated by Royal Charter, or a professor or lecturer in any one of such sciences employed by Government, such a certificate shall not be required ; but, instead thereof, his application shall be countersigned by the registrar, president, principal, or secretary of such university or college.

5. Upon receiving such application the Secretary of State may, if he think fit, grant to the applicant a license under this Act.

6. A license under this Act shall, unless earlier revoked, be in force, in the case of the holder being a professor or lecturer as herein-before mentioned, during such time as he shall continue to hold such professorship or lectureship, and in any other case for the term of five years. Provided that from time to time, when a license expires, a Secretary of State shall renew the same upon receiving a written application from the holder, without requiring a fresh certificate or any countersigning of the application.

7. A Secretary of State may at any time, on cause shown, revoke any license granted under this Act.

8. A license under this Act shall extend to any person assisting the holder of the license, provided the person assisting acts in the presence and under the directions of such holder.

9. All offences and penalties under this Act may be prosecuted and recovered in manner directed by the Summary Jurisdiction Acts before a Court of summary jurisdiction.

10. Any person who has been convicted of any offence punishable by this Act by any justices may appeal in England to the next general or quarter sessions of the peace.

The following are the provisions of the Bill introduced in the Session of 1875 into the House of Lords by Lord Hartismere (Lord Henniker):

2. It shall not be lawful, after the first day of January one thousand eight hundred and seventy-six, to perform a vivisection save in a place which is registered in pursuance of this Act.

Notice of any place in which it is intended to perform vivisections shall be given in Great Britain to one of Her Majesty's Principal Secretaries of State (in this Act referred to as the Secretary of State), and in Ireland to the Chief Secretary to the Lord Lieutenant of Ireland (in this Act referred to as the Chief Secretary), such notice shall be signed by a member of some college of physicians or surgeons, and shall sufficiently describe the place in respect of which it is given; and the Secretary of State or Chief Secretary shall cause any place with respect to which such notice has been given, to be entered on a register to be kept for the purposes of this Act, in such form and under the management of such persons as the Secretary of State and Chief Secretary may respectively direct.

An entry on the register in pursuance of this section shall continue in force for twelve months from the date thereof and no longer; but such entry may be at any time renewed on a fresh notice being given as required by this section.

Any person who, after the first day of January one thousand eight hundred and seventy-six, performs a vivisection in a place which is not registered in conformity with this section, shall be deemed to have committed an offence against this Act.

The Secretary of State or Chief Secretary may remove any registered place from the register on its being proved to his satisfaction that any provision of this Act has been contravened in such place.

3. Any inspector of anatomy may at any time visit and inspect any place which is for the time being registered in pursuance of this Act.

4. A vivisection shall not (save as herein-after mentioned), after the first day of January one thousand eight hundred and seventy-six, be performed on any animal until such animal has been placed completely under the influence of an anæsthetic; and for the purposes of this section the substance called urari or curare shall not be deemed to be an anæsthetic.

Any person may apply to the Secretary of State or Chief Secretary for a special license to perform vivisections without the use of anæsthetics, and the Secretary of State or Chief Secretary may, as he thinks fit, grant or refuse such license.

There shall be paid in respect of every such license a sum not exceeding ten pounds, and every such license shall continue in force for six months, and no longer.

Any person who performs a vivisection in contravention of this section shall be deemed to have committed an offence against this Act.

5. A justice of the peace, on information on oath that there is reasonable ground to believe that vivisections are performed at any place not registered in pursuance of this Act, may issue his warrant authorising any officer of police to enter and search such place, and to take the names of the persons found therein.

Any person who refuses admission on demand to a police officer so authorised, or who obstructs such officer in the execution of his duty under this section, or who refuses on demand to disclose his name and address, shall be liable to a penalty not exceeding five pounds.

6. Any person who commits any offence against this Act for which no other penalty is imposed shall be liable to a penalty not exceeding twenty pounds.

All offences and penalties under this Act may be prosecuted and recovered in manner directed by the Summary Jurisdiction Acts before a court of summary jurisdiction.

The term "Summary Jurisdiction Acts" means as follows :

As to England, the Act of the session of the eleventh and twelfth years of the reign of Her present Majesty, chapter forty-three, intituled "An Act to facilitate the performance of the duties of justices of the peace out of sessions within England and Wales with respect to summary convictions and orders," and any Acts amending the same :

As to Scotland, "The Summary Procedure Act, 1864:"

As to Ireland, within the police district of Dublin metropolis, the Acts regulating the powers and duties of justices of the peace for such district, or of the police of such district ; and elsewhere in Ireland, "The Petty Sessions (Ireland) Act, 1851," and any Act amending the same :

The term "court of summary jurisdiction" means in England and Ireland any two justices of the peace or any metropolitan stipendiary or other magistrate empowered by law to do alone or with others any act authorised to be done by more than one justice of the peace ; and in Scotland any justice or justices of the peace, sheriff, or other magistrate by whatever name called, proceedings before whom for the trial or prosecution of any offence or for the recovery of any penalty under any Act of

Parliament, the provisions of the Summary Jurisdiction Act, 1864, may be applied :

In Scotland the following provisions shall have effect :

(1.) All jurisdiction, powers, and authorities necessary for the court of summary jurisdiction under this Act are hereby conferred on that court :

(2.) Every person found liable under this Act in any penalty shall be liable in default of immediate payment to imprisonment for a term not exceeding three months, and the conviction and warrant may be in the form of No. 3 of Schedule K. of the Summary Procedure Act, 1864.

7. In this Act, the term "vivisection" includes the cutting or wounding, or treating with galvanism or other appliances, any living vertebrate animal for purposes of physiological research or demonstration, also the artificial production in any living vertebrate animal of painful disease for purposes of physiological research or demonstration.

(E.)

Extracts of Evidence on Sensibility and Anæsthetics.



Among the numerous illustrations to be traced throughout the Evidence before us of the unsatisfactory nature of the results of the thousands of experiments made by Vivisectors, not the least striking is the absolute difference of opinion which appears to prevail among the most eminent of them respecting the most elementary fact which their investigations might have ascertained, namely, the Sensibility of Animals, and the influence upon them of various anæsthetics and narcotics.

Here, for example, are Dr. Pavy and Dr. Sibson's statements, tending to show that baking and starvation to death are not very painful, only a slight discomfort.

Dr. PAVY:

"Should not think a healthy frog suffers very much the experience of being put into boiling water (2159). I think we should not feel any pain (if we were put into water, and the temperature gradually raised to the boiling point). . . . The water would have the effect of raising the temperature of the body; and when the temperature of the body reaches about 10 or 12 degrees above the normal point, death ensues; so that death would ensue long before the animal could be subjected to the influence of the boiling water (2160).

[It is respectfully suggested whether, under these new physiological views, recourse ought not to be had to the old practice of boiling criminals to death, as the most humane and painless mode of execution !]

Dr. SIBSON :

(Asked whether he would deny that the suffering involved in raising the temperature of animals till they died would be very severe?) "That is a question that I happen to have paid a great deal of attention to, and I am not of opinion that it would produce great suffering" (4745). Thinks, nevertheless, that Goltz's experiment of boiling a frog to death is "a horrible idea" (4750). (Asked whether he would say the same of Chossat's experiments of starving animals to death, that very little suffering was involved in these experiments?) "I am very familiar with these experiments; I have been over them again and again, and I would say the very same of those, that there was very little suffering inflicted on those animals by the process of starvation which they were subjected to by Chossat" (4751). (Asked whether, supposing that urari is in no respect an anæsthetic, he would say that a painful operation, lasting half-an-hour, and followed by experiments, in which the bile-ducts are acted upon by medicines during eight and a half hours more, would be very painful or not?) "I do not think they would be very painful" (4760). (Asked whether the earlier stages of starvation are not painful?) says, "I do not know. There must be some discomfort undoubtedly; but it is a very slight discomfort, I imagine" (4787). (Asked whether, when sailors are exposed to starvation by loss of their vessel, he considers their sufferings only amount to discomfort or inconvenience and do not merit the name of extreme pain?) answers, "I should say so, certainly" (4789).

Dr. WALKER, on the contrary, testifies not only to the pain of the animals under starvation, but to the hardening effect on experimenters of making such experiments :

"I can only repeat what I have said just now, that Nature will not suspend her laws to please me or any particular individual, or any particular theory, and that vivisectors are not exempt from the law of habit. I can bring you two or three cases to prove the hardening effect of habit. An observation, which first brought to my notice the hardening effect of habit, both moral and physical, is this. I used to dine very often with a lecturer on physiology, and one night I found that I could not enjoy either my cigar or my dinner, because the day before we had gone through the laboratory, and I could not get rid of the imploring look of the dogs which hoped for some food every time that they saw a human being, the patient suffering of the fowls, and of the desperate efforts made by some rabbits to allay the pangs of hunger with anything to engage the digestion; and it appeared to me that my friend was indifferent. He had been a vivisector some years; I was a beginner" (4908).

Dr. PRITCHARD says :

"I have performed some thousands of operations on animals (as a veterinary surgeon), and I have never yet been able to detect any difference in sensation between the skin of either one or the other and the human subject beyond this, that the cuticle is thicker in some animals than in others, and of course the knife has to penetrate deeper to reach the sensitive structure ; but when once it has reached the sensitive, I think it is as sensitive in the one animal as the other" (846).

Mr. SWAYNE TAYLOR :

"A dog experiences the effects of poison (of all animals) most like a human being. The doses of poison for a middle-sized dog are similar to those which will act on a human being ; the symptoms of suffering are really very much the same (1202). There is something very dreadful in the operation of strychnine upon an animal. No doubt it suffers agonizing pain" (1219).

Dr. SIMON :

"Has no doubt as to the frog's full sensibility to pain" (1499).

But Dr. LISTER :

"Does not believe that the sufferings of the frog are worthy of serious consideration" (4420).

Dr. ANTHONY :

"Thinks you might fairly take the amount of intelligence as almost the measure of sensation" (2598).

But Dr. RUTHERFORD says :

"It is wonderful what you may do to a sheep-dog without the animal making any commotion" (2871).

Again : Throughout a large part of this evidence, and generally in all apologies for vivisection, the use of anæsthetics is brought prominently forward, as if they annihilated the pain of the animal, and even the most prolonged and seemingly frightful experiments were rendered wholly painless. Many incidental statements and admissions, however, justify the remark in Dr. Hoggan's letter to the *Morning Post* last spring that anæsthetics "prove far more efficacious in lulling public feeling towards the vivisectors than pain in the vivisected" (4108); and Dr. Walker's statement before the Commission :

"When an experimenter says, as is said in a recent publication, that 'before and throughout these experiments anæsthetics were used,' it is perfectly true; but if by that you choose to understand that while the animal lived and was experimented on he was insensible, it is the greatest delusion that ever was" (1810).

Sir J. PAGET:

"Physiological experiments may be done under anæsthesia, but if the anæsthetic is not well given the animal gets out of its influence (350). The end of that course of observations was to find out that we have no certain means by which the fatal effects of chloroform can be prevented. I believe that from twenty to thirty persons die of the effects of chloroform every year in the British Island alone (380).

Dr. PRITCHARD tells us, that

"Chloroform poisons the blood of a horse; has to be administered in very large quantities (794). I should never think of applying chloroform to dogs at all. They appear for some time not to be under the influence of it at all, and then suddenly they come under the influence of it, and we find it impossible to bring them round (798). Would use it on a cat" (801).

Dr. CRICHTON BROWN:

"The sacrifice of animals was twenty-nine, and of these five animals died before they were touched, from the effects of the anæsthetic, showing that it was carefully given" (3178).

The practice of these eminent gentlemen is as various as their theories. Dr. Schafer avows that he never administers anæsthetics to frogs (3797). Dr. McDonnell boasts that he always does so. Dr. Cleland honestly confesses, "It never occurred to me to apply an anæsthetic to a frog" (4615). In brief, no rule appears to prevail, either in theory or practice, on a matter whereon must hinge the question of whether an immense mass of experiments are wholly painless (and morally blameless), or whether they involve the double torment, the *hyperæsthesia*, which some of the highest authorities have affirmed they produce. A remark of Dr. Swayne Taylor seems unintentionally to exhibit the scientific men of Europe much in the aspect of school-boys playing with weapons of which they understand neither the use nor nature.

DR. SWAYNE TAYLOR :

"I should doubt whether the muscles are not affected through the nerves (under curare), but it depends on whether you use the curare extract or the alkaloid called *curarina*. I believe there is not a grain of the alkaloid in this country. I have only the curare extract, and that is a preparation made by the American Indians—we do not exactly know how, and we are not quite sure whether it is always made the same way (1192). The alkaloid no doubt would destroy sensation; the other thing, the curare, might or might not; its effects are variable" (1244).

MR. SCHAFER says :

"We do not know what anæsthetic to apply to frogs. We do not know that the anæsthetic would not give as much pain as the operation itself" (3797).

DR. GAMGEE, F.R.S., goes so far as to question whether even the decapitation of a frog puts an end to all sensibility to suffering :

"There are innumerable facts which make it almost certain that if a person were decapitated, the head would not feel. Now it is conceivable that things may be different in cold-blooded animals. Their tissues are capable of living for a longer time when deprived of blood, and therefore I have always been in the habit, after decapitating the head of a frog, of at once crushing the head" (5414).

DR. CLELAND :

Asked, "Have you ever considered how far frogs can be anæsthetised?"—"I have tried to make up my mind how far the frog feels at all, and I own that I have not come to any conclusion on the subject" (4614).

(F.)

Extracts of Evidence concerning Foreign Physiologists.

As an illustration of the reasons for alarm at the importation of foreign teachers, and the influence of foreign example in English physiological laboratories, attention is respectfully called to the following extracts from the evidence of Dr. Emanuel Klein, the only foreigner examined by the Commission. Two others were recently established in this country, namely, M. Vignal, assistant to Dr. Rutherford in his celebrated experiments in Edinburgh, and M. Dupuy, a French vivisector, who (it would appear from the questions of the Commission to Dr. Burdon Sanderson) was appointed Lecturer on Physiology at the London School of Medicine for Women, but resigned his office when the lady students objected to attend at his vivisectional experiments (2792). Dr. Klein, however, as above stated, was alone examined by the Royal Commission, who in their Report give the following account of the duplicate appearance of his evidence in their Blue Book :

“Dr. Emanuel Klein, assistant professor at the laboratory of the Brown Institution, lecturer on general histology at St. Bartholomew's Hospital, gave evidence before us. Dr. Klein has acted in the investigations which have been conducted under the medical officer of the Privy Council, and is author of the first part of the Handbook to which we shall have to refer. The proof of his evidence was sent to him in the usual course for his corrections. This he returned with alterations which appeared to us to be so much at variance with the letter and spirit of the answers he had given us at his examination, that we felt ourselves unable to receive them as an authentic report of his evidence. In consequence of this refusal he has requested permission to withdraw the evidence.

We have thought that this course would not be right, and we have included in the minutes the shorthand writer's note as it was originally taken, and have given in the Appendix the amended proof submitted to us, with the correspondence on the subject."

The following facts must be borne in mind to understand the importance of this revelation of the principles and tone of feeling of foreign physiologists.

Dr. Klein has been engaged for four years as Assistant in the Brown Institute (3688), a humane foundation intended for the relief and cure of the diseases of animals, but where it now appears *more* animals are kept for painful experiments than are kept for cure (2815, 2816). He came direct from Vienna (3689), and has been since associated with Dr. Burdon Sanderson, not only at the Brown Institute, but also with him and Dr. Brunton and Dr. Michael Foster in the composition of the *Handbook of the Physiological Laboratory*. He has been entrusted by Mr. Simon (Medical Officer to the Privy Council, who has the expenditure of the annual grant of £2000 for scientific purposes) with making certain pathological investigations on animals; and it appears that Mr. Simon gave him only "general instructions" on the subject, and did not convey to him the rule laid down in Mr. Forster's Minute, "that in any severely painful operation chloroform is to be administered for any experiment connected with the Privy Council" (3650). Finally, Dr. Klein holds the appointment of Lecturer on General Histology at the Medical School of St. Bartholomew's Hospital. Carrying these facts with us, Dr. Klein's candid avowals appear to cast painful light on the statements of some English physiologists and their advocates concerning foreign scientific education; as, for example, Dr. Burdon Sanderson's remark, that he "wishes to see the type of education here more like the type of education in Germany" (2732); Dr. Gamgee's eulogium on Professor Ludwig, of Leipsic, who, he is "certain, is as cautious in the performance of any experiment on a living animal as any English physiologist that ever lived, and who has been the teacher of nearly

all the physiologists in Europe, and has indoctrinated nearly the whole of them in the methods of physiological inquiry" (5418); and, finally, Mr. Simon's testimony to the "kindness" of Dr. Burdon Sanderson and Dr. Klein when interrogated, "Whether he did not think that the habit of regarding animals as a mere battery of vital forces on which particular results are to be studied, necessarily to a certain extent produces the effect of diminishing the sympathy with their sufferings?"—"I think not," said Mr. Simon. "I do not know anywhere a kinder person than Dr. Burdon Sanderson" (1476). "Or than Dr. Klein, for instance?" asked the Commission. "I have no reason," said Mr. Simon, "to think otherwise of him" (1477).

These, then, in brief, are the views and practice of a gentleman invited to assist English physiologists, and to instruct the students in St. Bartholomew's Hospital, and charged by the Medical Officer of the Privy Council (without any caution on the side of humanity) with carrying out experiments on animals at the public expense.

It has been thought advisable to follow the example of the Royal Commissioners, by giving the Evidence as offered before the Commission, and as it was subsequently altered by Dr. Klein. It may be found specially interesting to compare those answers against which an asterisk has been placed.

Dr. KLEIN'S EVIDENCE,

From the Short-hand Notes of the Secretary of the Royal Commission.

(Minutes, p. 183 seq.)

3528. (*Chairman.*) Are you Assistant Professor at the Laboratory of the Brown Institution?—Yes.

3529. Do you hold any other public appointment?—I am Lecturer on Histology at the Medical School of St. Bartholomew's Hospital.

3530. Are you the author of the first section of this book, which is known as a handbook for the physiological laboratory?—Yes.

*3538. What is your own practice with regard to the use of anæsthetics in experiments that are otherwise painful?—Except for teaching purposes, for demonstration, I never use anæsthetics, where it is not necessary for convenience. If I demonstrate, I use anæsthetics. If I do experiments for my inquiries in pathological research, except for convenience sake, as for instance on dogs and cats, I do not use them. On frogs and the lower animals I never use them.

*3539. When you say that you only use them for convenience sake, do you mean that you have no regard at all to the sufferings of the animals?—No regard at all.

*3540. You are prepared to establish that as a principle which you approve?—I think that with regard to an experimenter, a man who conducts special research, and performs an experiment, he has no time, so to speak, for thinking what will the animal feel or suffer. His only purpose is to perform the exper-

Dr. KLEIN'S EVIDENCE,

As altered by himself, and rejected by the Royal Commission.

(Appendix, p. 327.)

3528. (*Chairman.*) Are you Assistant Professor at the Laboratory of the Brown Institution?—Yes.

3529. Do you hold any other public appointment?—I am Lecturer on General Histology at the Medical School of St. Bartholomew's Hospital.

3530. Are you the author of the first section of this book, which is known as a handbook for the physiological laboratory?—Yes.

3538. What is your own practice with regard to the use of anæsthetics in experiments that are otherwise painful?—My own experiments do not involve very painful operations; and in them, except for teaching purposes, for demonstration, I never use anæsthetics, where it is not necessary to facilitate the proceedings. If I demonstrate, I use anæsthetics. If I do the experiments for my *pathological* research, except for convenience sake, as for instance on dogs and cats, I do not use them. On frogs and like animals I never use them.

3539. When you say that you only use them for convenience sake, do you mean that you have no regard at all to the sufferings of the animals?—No regard at all for such little suffering as is in my operations.

3540. You are prepared to establish that as a principle which you approve?—I think that with regard to an experimenter; a man who conducts special research and performs an experiment has no time, so to speak, for thinking what the animal feels or suffers. If anæsthetics ought to be used, he uses them. If

riment, to learn as much from it as possible, and to do it as quickly as possible.

*3541. Then for your own purposes you disregard entirely the question of the suffering of the animal in performing a painful experiment?—I do.

3542. Why do you regard it then when it is for a demonstration?—Because I know that there is a great deal of feeling against it in this country, and when it is not necessary, one should not perhaps act against the opinion or the belief of certain individuals of the auditorium. One must take regard of the feelings and opinions of those people before whom one does the experiment.

*3543. Then am I wrong in attributing to you that you separate yourself entirely from the feeling which you observe to prevail in this country in regard to humanity to animals?—I separate myself as an investigator from myself as a teacher.

*3544. But in regard to your proceedings as an investigator, you are prepared to acknowledge that you hold as entirely indifferent the sufferings of the animal which is subjected to your investigation? Yes.

3545. (*Lord Winmarleigh.*) Had you practised before coming to England?—Yes, in Vienna.

not, he is like a man who performs a surgical operation in like circumstances. His only purpose is to perform the experiment, to learn as much from it as possible, and to do it as quickly as possible.

3541. Then for your own purposes you disregard entirely the question of the suffering of the animal in performing a painful experiment?—To the small extent which I have described, I do.

3542. Why do you regard it then when it is for a demonstration?—Because I know that there is a great deal of feeling against it in this country, and when it is unnecessary, one should not perhaps act against the opinion or the belief of certain individuals of the auditorium. One ought to take regard of the feelings and opinions of those persons before whom one does the experiment.

3543. Then am I wrong in attributing to you that you separate yourself entirely from the feeling which you observe to prevail in this country in regard to humanity to animals?—I separate myself as an investigator from myself as a teacher. I separate myself as an investigator, when I consult only my own feelings, from my position as a teacher, who has to consult and respect the feelings of others. I am as much opposed as any one in this country to unnecessary or unprofitable cruelty to animals; but, for the purposes of scientific investigation, I hold that I have the same right to use the lower animals as has the sportsman and others in this country.

3544. But in regard to your proceedings as an investigator, you are prepared to acknowledge that you hold as entirely indifferent the sufferings of the animal which is subjected to your investigation? During the time of the experiment, and so far as indispensable for its purpose, yes.

3545. (*Lord Winmarleigh.*) Had you practised before coming to England?—Yes, in Vienna.

*3546. Do you believe that that is a general practice on the Continent, to disregard altogether the feelings of the animals?—I believe so.

3547. Have you, since you have come to this country, had any proof of what you state now with regard to the different feeling that pervades the inhabitants of England with regard to the feelings of the animals on which you operate? Have you had any instances of the contrary feeling to that which you have just mentioned, on the part of Englishmen, since you have come to this country?—Yes, there is a great deal of difference.

3548. You have seen it exhibited?—Yes.

*3549. Would you give the Commission an instance in which any such feeling has been exhibited?—I mean with regard to the journals; the outcry and agitation carried on in the different journals against the practice of vivisection. There is no such thing abroad; there the general public takes no view, does not claim to pronounce any criticism or any judgment about scientific teaching or physiology in general.

*3553. But you believe that generally speaking there is a very different feeling in England?—Not amongst the physiologists; I do not think there is.

*3554. But amongst the people of England do you think there is a very different feeling from what exists upon the Continent on this subject?—Yes, I think so.

3555. Seeing that there is that feel-

3546. Do you believe that that is a general practice on the Continent, to disregard altogether the feelings of the animals?—I believe that, there as here, in cases where it is necessary to inflict pain, the experimenter (like an operating surgeon) would disregard the pain.

3547. Have you, since you have come to this country, had any proof of what you state now with regard to the different feeling that pervades the inhabitants of England with regard to the feelings of the animals on which you operate? Have you had any instances of the contrary feeling to that which you have just mentioned, on the part of Englishmen, since you have come to this country?—Yes, there is a great deal of difference.

3548. You have seen it exhibited?—Yes.

3549. Would you give the Commission an instance in which any such feeling has been exhibited?—I mean with regard to the journals; the agitation carried on in the different journals against what is called vivisection. There is no such thing abroad; there the general public takes no view, does not claim to pronounce any criticism or any judgment about scientific teaching and research in general. It assumes that men of science, like men in general, have conscience enough not needlessly to hurt brute animals.

3553. But you believe that generally speaking there is a very different feeling in England?—Not amongst the physiologists; I do not think there is, but I cannot speak with authority.

3554. But amongst the people of England do you think there is a very different feeling from what exists upon the Continent on this subject?—Yes, I think so. In England they seem more disposed to take care of other people's consciences in matters they do not clearly understand.

3555. Seeing that there is that feel-

ing, have you found that in yielding to that feeling in your lectures your experiments have not been so effective as they would have been if you had acted without anæsthetics?—Well, really I could not say.

3556. How long have you practised in England?—Four years and a half now.

*3562. Could you explain more in detail why you think it necessary, besides the point of time, to abstain from the use of anæsthetics in cases of research? I fancy the whole attention of the investigator is drawn to the purpose of the experiment. He has made clear to himself what he is going to do, how he is going to do it, and what he is going to learn by it. He generally chloroforms a dog when he experiments on a dog for convenience sake, in order not to be disturbed by the howling and the resistance; and so with cats. He does not do it with frogs. I do not think we have any right to regard the sensibility and feeling of a frog as being of a very high degree. And just as little as a sportsman or a cook goes inquiring into the detail of the whole business while the sportsman is hunting or the cook putting a lobster into boiling water, just as little as one may expect these persons to go inquiring into the detail of the feeling of the animal, just as little can the physiologist or the investigator be expected to devote time and thought to inquiring what this animal will feel while he is doing the experiment. His whole attention is only directed to the making the experiment, how to do it quickly, and to learn the most that he can from it.

*3563. But do you think that where it is only a question of time a professor

ing, have you found that in yielding to that feeling in your lectures, your experiments have not been so effective as they would have been if you had acted without anæsthetics?—Well, really I could not say. I have had no opportunity of judging.

3556. How long have you practised in England?—Four years and a half now.

3562. Could you explain more in detail why you think it necessary, besides the point of time, to abstain from the use of anæsthetics in cases of research? Let me again explain that my experiments do not involve severely painful operations, and I therefore am speaking of the (so to speak) superfluous use of anæsthetics. Where superfluous, they are to be objected to, because the whole attention of the investigator ought to be given to the purpose of the experiment. He has made clear to himself what he is going to do, how he is going to do it, and what he is going to learn by it. He generally chloroforms a dog when he experiments on a dog for convenience sake, in order not to be disturbed by the howling and the resistance; and so with cats. He does not do it with frogs. I do not think we have any right to regard the sensibility and feeling of a frog as being of a very high degree. And just as little as a sportsman or a cook goes inquiring while the sportsman is hunting or the cook putting a lobster into boiling water, just as little as one may expect these persons to go inquiring into the detail of the feeling of the animal, just as little can the physiologist or the investigator be expected to devote time and thought to inquiring what this animal feels while he is doing the experiment. His whole attention is only directed to the making the experiment, how to do it quickly, and to learn the most from it that he can.

3563. But do you think that where it is only a question of time a professor

of physiology is not bound to consult humanitarian feelings?—I must again draw a distinction between an investigator and a professor of physiology. I understand a professor of physiology is a man who teaches, and there I think it is quite right before a class that when one performs an experiment one should use anæsthetics, but an investigator has no time. I myself, when I am going to make an experiment for pathological research, have no time really with regard what the animal will feel.

3564. Is that really the only reason that you can give for not using anæsthetics?—It is to a great extent; it is the chief reason I should say; there is no place for considering that point.

3568. Have you found much progress in physiological science lately in this country?—I think so.

3569. You find more attention given to it than when you first came?—Yes, considerably more.

3596. Have you, for private investigation, tried any experiments on dogs or cats, not pathological, but physiological experiments?—No, not directly for physiological experiments. I may have used a dog which has been used at the same time for pathological purposes, also for physiological.

3597. (*Chairman.*) When you use a dog for physiological purposes, do you adopt any particular mode of fastening that dog?—No; it is fastened on a large board, the four limbs are fastened.

3598. And how are they fastened?—With broad bands.

3599. (*Mr. Forster.*) You were stating that you considered it was so important to be absorbed upon the object of the experiment, that you could think of nothing else, and therefore could not really, in your opinion, afford time to consider the feelings of the animal; do you not sometimes find an inconvenient inter-

of physiology is not bound to consult humanitarian feelings?—Certainly; but I must again draw a distinction between an investigator and a professor of physiology. I understand a professor of physiology to be a man who teaches, and there I think it is quite right that when one performs an experiment before a class one should use anæsthetics, but an investigator has no occasion to use anæsthetics except from the real necessity of the case and where severely painful operations are in question.

3564. Is that really the only reason that you can give for not using anæsthetics?—It is to a great extent; it is the chief reason I should say; there is no place for considering that point.

3568. Have you found much progress in physiological science lately in this country?—I think so, very considerable.

3569. You find more attention given to it than when you first came?—Yes, considerably more.

3596. Have you, for private investigation, tried any experiments on dogs or cats, not pathological, but physiological experiments?—No, not directly for physiological experiments. I may have used a dog which has been used at the same time for pathological purposes, also for physiological.

3597. (*Chairman.*) When you use a dog for physiological purposes, do you adopt any particular mode of fastening that dog?—No, it is fastened on a large board, the four limbs are fastened.

3598. And how are they fastened?—With broad bands, as when giving chloroform.

3599. (*Mr. Forster.*) You were stating that you considered it was so important to be absorbed upon the object of the experiment, that you could think of nothing else, and therefore could not really, in your opinion, afford time to consider the feelings of the animal; do you not sometimes find an inconvenient inter-

ruption from the cries of the animal?—Only then I do use chloroform, that is what I said; I use anæsthetics for convenience sake.

3600. Do you ever use curari for that purpose, to stop the cries?—Curari involves other difficulties; the animal ceases to breathe because it paralyses the movement for breathing, and that might be against the object of the experiment. The animal, for instance, is to be kept alive after the experiment was over for some time; that could not be done after artificial respiration has been used.

3601. But practically, has not the howling of the dogs interfered with experiments?—Dogs do howl also when you chloroform them.

3602. Do you try experiments with any animals that do not signify pain so loudly?—Rabbits.

3603. They do not howl, I suppose? They do not.

3604. Then of course the same motive would not induce you to use chloroform in their case?—No.

*3605. In fact, I suppose with rabbits you would not use chloroform?—I use chloral hydrate; but, as a general rule, for my scientific investigations, I do not use chloroform, or any other anæsthetic, except for convenience sake, in dogs and cats, and for no other animals as a general rule. There may be exceptions perhaps, but as a general rule, I think I am safe in saying I do not use it.

*3606. You gave it as your opinion, that your views on the subject, although not shared by the British public generally, were the views of the British physiologists?—I would not say that dis-

ruption from the cries of the animal?—I do then use chloroform, that is what I said; I use anæsthetics for convenience sake in the sense already spoken of.

3600. Do you ever use curare for that purpose, to stop the cries?—Curare involves other difficulties; the animal ceases to breathe because it paralyses the movement for breathing, and that might be against the object of the experiment. The animal, for instance, is to be kept alive for some time after the experiment is over; that could not be done after artificial respiration has been induced.

3601. But practically, has not the howling of the dogs interfered with experiments?—Dogs do howl also when you chloroform them.

3602. Do you try experiments with any animals that do not signify pain so loudly?—Rabbits.

3603. They do not howl, I suppose? They do not.

3604. Then of course the same motive would not induce you to use chloroform in their case?—No.

3605. In fact, I suppose with rabbits you would not use chloroform?—I prefer and use chloral hydrate; but, as a general rule, for any not severely painful scientific investigations, I do not use chloroform, or any other anæsthetic, except for convenience sake, in dogs and cats, and for no other animals as a general rule. There may be exceptions perhaps, but as a general rule, I think I am safe in saying I do not use it. I wish distinctly that it be understood that I refer only to such experiments as I myself make, namely, injection into the abdominal cavity and injection into the vein.

3606. You gave it as your opinion, that your views on the subject, although not shared by the British public generally, were the views of the British physiologists?—I would not say that dis-

tinctly, but I know a few of them, and I think that is the view held by them.

3612. But what experiments you have tried have been tried in the Brown Institution at your own cost, I suppose?—In my private room. Those that I do for teaching purposes, physiological purposes just referred to, I do in my private room; I live there.

3626. Are these pupils of yours in any way connected with the London University?—No; they are pupils from different hospitals who wish to enter more closely into the study of microscopical anatomy.

3627. And in the teaching of those pupils you draw no distinction between painful experiments and non-painful experiments if the students themselves raise no objection to see the animal subjected to pain?—Yes; I think that would be quite what I expressed before.

3628. Therefore any students who come there, so far as your teaching and influence are concerned, adopt, I presume, the principle that you have adopted?—Yes.

*3629. And consider that a physiological inquirer has too much to do to think about the sufferings of the animals?—Yes; may I be allowed to state, with regard to experiments for teaching purposes, that there are extremely few that I really do.

*3631. But now coming to vivisection proper, you do perform in this laboratory operations which involved a great deal of pain to the animal?—Yes, we do occasionally; of course they are very few.

tinctly, but I know a few of them, and I think that is the view held by them, but of course being a foreigner I have no authority of saying so.

3612. But what experiments you have tried have been tried in the Brown Institution at your own cost, I suppose?—In my private room. Those that I do for teaching purposes, physiological purposes, I do in my private room; I live there.

3626. Are these pupils of yours in any way connected with the London University?—No; they are pupils from different hospitals who wish to enter more closely into microscopical or histological anatomy.

3627. And in the teaching of those pupils you draw no distinction between painful experiments and non-painful experiments if the students themselves raise no objection to see the animal subjected to pain?—Yes; I think that would be quite what I expressed before.

3628. Therefore any students who come there, so far as your teaching and influence are concerned, adopt, I presume, the principle that you have adopted?—Yes.

3629. And consider that a physiological inquirer has too much to do to think about the sufferings of the animals?—Yes, excepted beforehand; may I be allowed to state, with regard to experiments for teaching purposes, that there are extremely few that I really make. I wish again to repeat that my investigations are almost entirely of a histological and pathological character, that is into the study of healthy and diseased structures.

3631. But now coming to vivisection proper, you do perform in this laboratory operations which involved a great deal of pain to the animal?—Not as operations, but in their eventual results we do occasionally; of course they are very few, they are as follows: injection

*3632. And without any question of employing anæsthetics, unless it happens to be for your own convenience to do so?—Yes.

*3633. And that principle, so far as your influence goes, is derived from you by the pupils who come to benefit by your teaching?—That applies only to that part of the experiments which is for teaching purposes.

3641. When you take hold of an animal for this purpose, what is done with it; do you bind it up while you are making this injection?—If it is a large vigorous animal, as a dog, we do bind it and fasten it. A cat we generally must chloroform.

3642. Why do you not chloroform a dog?—We chloroform a cat because we are afraid of being scratched.

3643. Why not a dog?—If it is a small dog there is no fear of being bitten by the dog.

*3650. I want to know whether he (Mr. Simon) has ever told you, as a general rule, for your guidance, that in any severely painful operation chloroform is to be administered for any experiment connected with the Privy Council?—The only direction which Mr. Simon gives is, that he gives the thema to do this and that investigation; but to say how we are to do it, or to criticise the results we obtain, I do not think he ever undertakes.

*3660. As I understand you, if you were directed to perform an operation for the purpose of ascertaining some fact, or supposed fact, with reference to the nerves of a dog, and it became necessary to cut the back of the dog severely for the purpose of exposing the

into the abdominal cavity and into the vein.

3632. And without any question of employing anæsthetics, unless it happens to be for your own convenience to do so?—Yes, anæsthetics would not be applicable, but the animal is generally not allowed to continue long in the diseased state.

3633. And that principle, so far as your influence goes, is derived from you by the pupils who come to benefit by your teaching?—That may be so or not, that applies only to the experiments which are for teaching purposes.

3641. When you take hold of an animal for this purpose, what is done with it; do you bind it up while you are making this injection?—If it is a large vigorous animal, as a dog, we do bind it. A cat we generally must chloroform.

3642. Why do you not chloroform a dog?—I chloroform a cat because I am afraid of being scratched.

3643. Why not a dog?—If it is a small dog there is no fear of being bitten by the dog.

3650. I want to know whether he has ever told you, as a general rule, for your guidance, that in any severely painful operation chloroform is to be administered for any experiment connected with the Privy Council?—The only direction which Mr. Simon gives is general. He asks us to do this or that investigation; but to say how we are to do it, or to criticise the results we obtain, I do not think he ever undertakes, and besides I have had no direct relations with Mr. Simon.

3660. As I understand you, if you were directed to perform an operation for the purpose of ascertaining some fact, or supposed fact, with reference to the nerves of a dog, and it became necessary to cut the back of the dog severely for the purpose of exposing the

dog's nerves, for the sake of saving yourself inconvenience, you would at once perform that without the use of anæsthetics ?—Yes.

*3661. And it is only because the dog might howl, or get into contortions, that you would use anæsthetics at all ? Yes.

3681. In the case of frogs, you never take out any part of the brain before you perform these experiments, do you ? No.

3682. That is a short process, is it not ?—Yes.

3683. But you think it unnecessary, because you say that a physiologist has a right to do as he likes with the animal ? Yes.

3700. Now there was one answer which you gave in the course of the questions put to you in which you said that other physiologists in England take the same view of the subject that you do. Do you know any physiologist that works in his private laboratory except yourself in England ?—I think that is more a matter of private talk, is it not ?

3701. You have given an answer ; I want to know whether you have any accurate information which enables you to say that other physiologists in England take the same view of the subject that you do ?—I have no accurate knowledge about it. I only expressed an opinion, a belief. I believe it is so ; I could not prove it, and I do not know for certain whether it is so ; but I believe that there are other physiologists who take the same view that I do.

3739. And you think that the view of scientific men on the Continent is your view, that animal suffering is so entirely unimportant compared with scientific research that it should not be

dog's nerves, for the sake of saving yourself inconvenience, you would at once perform that without the use of anæsthetics ?—Yes, if it were against the purpose of the experiment.

3661. And it is only because the dog might howl, or get into contortions, that you would use anæsthetics at all ?—Yes, that is to say, this would be one reason for use, where otherwise the anæsthetics might be unnecessary.

3681. In the case of frogs, you never take out any part of the brain before you perform these experiments, do you ? No.

3682. That is a short process, is it not ?—Yes.

3683. But you think it unnecessary, because you say that a physiologist has a right to do as he likes with the animal ? Yes.

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3739. And you think that the view of scientific men on the Continent is your view, that animal suffering is so entirely unimportant compared with scientific research that it should not be

taken into account at all?—Yes, except for convenience sake.

3746. (*Mr. Forster.*) Do you recollect whether Mr. Simon informed you that when I was in office I had said something to him about this, or did he give you a minute that I wrote?—I think he spoke to me about it; but really it is so long ago that I could not be certain.

3747. You cannot recollect whether he gave you a minute?—No.

3748. You do not recollect his giving you any words written by me, to this effect, "That no experiments on living animals should be conducted at the cost of the State without the employment of some anæsthetic in case of painful operation, and without a report from time to time by the gentleman conducting the experiments, explaining their object and showing their necessity for the purpose of discovery." Do you recollect seeing those words?—No. May I be allowed to say this, that at that time I was not connected directly with Mr. Simon. I was at that time simply an assistant of Dr. Burdon Sanderson, so that Mr. Simon could not have occasion to give me that instruction in an official way.

3749. When you were put directly under him you had not that minute laid before you, as I understand you?—No.

3753. You stated just now that you believed that curari was an anæsthetic for certain animals?—Yes.

*3754. What are your reasons for that belief?—My reasons are chiefly the experiments given by Schiff; he made

taken into account at all?—Yes, in cases where important results to mankind are in question, and the results cannot be got without animal suffering.

3746. (*Mr. Forster.*) Do you recollect whether Mr. Simon informed you that when I was in office I had said something to him about this, or did he give you a minute that I wrote?—I think he spoke to me about it; but really it is so long ago that I could not be certain.

3747. You cannot recollect whether he gave you a minute?—No; my business relations with him at that time were exclusively through Dr. Sanderson.

3748. You do not recollect his giving you any words written by me, to this effect, "That no experiments on living animals should be conducted at the cost of the State without the employment of some anæsthetic in case of painful operation, and without a report from time to time by the gentleman conducting the experiments, explaining their object and showing their necessity for the purpose of discovery." Do you recollect seeing those words?—No. May I be allowed to repeat that at that time I was not connected directly with Mr. Simon. I was at that time simply an assistant of Dr. Burdon Sanderson, so that Mr. Simon could not have had occasion to give me that instruction in an official way.

3749. When you were put directly under him you had not that minute laid before you, as I understand you?—I am only quite recently in direct business relation with Mr. Simon, and this is not in experimental investigation.

3753. You stated just now that you believed that curare was an anæsthetic for certain animals?—Yes.

3754. What are your reasons for that belief?—My reasons are chiefly the experiments given by Schiff; he made

some experiment, and I think it proves that curari does not act always on the sensitive nerves. We know that it paralyses the motor nerves.

3755. But Claude Bernard says, does he not, that it does not destroy the sensitiveness?—That was the general belief until these experiments of Schiff's were known.

3756. Have you read Claude Bernard's reasons for his view?—No, I have not.

3757. (*Mr. Hutton.*) You are perhaps aware that Claude Bernard describes two experiments on man with curare?—No.

some experiment, and I think it proves that curare does under certain conditions act on the sensitive nerves. We know that it paralyses the motor nerves.

3755. But Claude Bernard says, does he not, that it does not destroy the sensitiveness?—That was the general belief until the experiments of Schiff's were known.

3756. Have you read Claude Bernard's reasons for his view?—No, I have not.

3757. (*Mr. Hutton.*) You are perhaps aware that Claude Bernard describes two experiments on man with curare?—No.

(G.)

**Reasons for Exemption of Horses, Asses, and Mules
from Physiological Experiments.**

The arguments in favour of exempting Horses, Asses, and Mules, from physiological experiments, do not cover all the ground of the reasons adduced by Mr. Hutton to prove that the *Household Animals*, Dogs and Cats, should enjoy such immunity, but are nevertheless sufficiently cogent.

1. Horses, especially high-bred and carefully-tended animals, are unquestionably extremely sensitive, as may be seen by their behaviour under ill-fitting harness, the bites of insects, or very moderate correction of the whip; and it is presumable that, if they are conscious of such slight injuries, they must be very sensitive to serious lesions, such as vivisections generally involve.

2. Although Englishmen are rarely, like the Arabs, in such close and affectionate relations with horses as to cause their exposure to torture to assume altogether the character of "*treachery*," rightly imputed by Mr. Hutton to the vivisection of dogs and cats, yet the services we accept from them, the amount of pleasure and profit which we derive from their ready performance of our tasks and obedience to our will, renders the cruel treatment of them a kind of *Ingratitude* scarcely less ungenerous and debasing. A horse, ass, or mule, which has served us with all its strength and intelligence for ten or fifteen years, certainly deserves nothing less at our

hands than a death—when death is needful—as speedy and painless as may be—rather than that we should conclude its life's devotion by hours of torture.

3. It is to be feared that if experiments on dogs and cats be prohibited by law, and a similar exemption be not extended to horses, asses, and mules, the latter animals will be used for a certain class of experiments (especially when old and to be purchased at a small price) more frequently than at present. According to the evidence of Mr. James Mills before the Commission (4957 et seq.), it appears that a horse would probably be a favourite subject for the experiments of students. Mr. Mills mentions one "bought for the purpose of dissecting" last winter at Edinburgh, "subjected for a whole week to various operations, such as tenotomy and neurotomy, and various minor operations"—"no anæsthetics whatever were given:" the operations were "very painful," and were done "for the purpose of the students simply demonstrating to each other things that could be learnt in every-day practice." All this has happened in the United Kingdom, in the open paddock of a public college. There is too much reason to apprehend that, were the Household Animals alone exempted from experiment, while the high price of the far less sensitive cows and sheep would obtain for them practical immunity, there would be a redoubled temptation to buy up worn-out horses, &c., for such use.

4. There is a certain class of exquisitely painful experiments to which these noble and intelligent animals seem particularly exposed. Putting out of view the prolonged tortures of the veterinary schools of Alfort and Lyons (where sixty operations, lasting ten hours, were habitually performed on the same animal as a practice of manipulative skill for the students), some strictly physiological experiments upon horses and asses, published in Dr. Brown Séquard's *Journal de Physiologie*, Vol. IV. No. xiii, reveal the sort of treatment which these animals may be expected to receive at the hands of experimentors. The operator, who describes his own proceedings, is M. A.

Chauveau, *Chef des Travaux d'anatomie et de physiologie à l'école Impériale Vétérinaire de Lyons*. His object was to ascertain the "excitability of the spinal marrow, and the convulsions and pain produced by that excitability." His study, he says, was made almost exclusively *sur les animaux solipèdes*, who "lend themselves marvellously by the large volume of their spinal marrow" to such experiments; and he "consecrated specially to this purpose eighty subjects." The importance of the results, he says, are not in proportion to the trouble they have cost; but such as they are, he hopes that they will concur with the observations of Flourens, Magendie, Longet, Bernard, Brown Séquard, and Schiff, in founding the laws which preside over the action of the spinal marrow. The animal is fixed on a table; an incision is made in its back of from thirty to thirty-five centimètres; the vertebræ are opened with the help of chisel, mallet, and pincers, and the spinal marrow exposed. No mention is made, in the very elaborate description of this operation, of the use of any anæsthetic whatever. Here are some of his cases. Case 7—a vigorous Mule. "When one pricks the marrow near the line of emergence of the sensitive nerves, the animal manifests the most violent pain. It groans and tries almost furious movements." Case 8—an Ass. The scratching of the marrow provokes immediately signs of violent suffering. Case 10—small Ass, very thin—pricked on the line of emergence of the posterior roots, "*douleur intense*." (This poor little beast had been subjected the previous day to a most painful operation—of course useless, since M. Chauveau's experiment must have involved death.) Case 11—a vigorous Horse. "Most evident signs of pain, groans and makes disorderly movements." Case 20—Old white Horse—"lying on the litter unable to rise, but nevertheless very sensitive." "At whatever point I scratch the posterior cord, I provoke signs of the most violent suffering." . . . "The animal agitates itself most violently" (p. 48).

It is surely to be desired that experiments like these on our

humble and faithful servants, when worn out in our service, should not be left to the discretion of even licensed physiologists, whatever may be their claims to humanity, but should be peremptorily prohibited by law, as involving a dereliction from all just and generous sentiment, for which no acquisition of new facts to science could possibly compensate or atone.

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Notes on Vivisection. By "A STUDENT OF MEDICINE." 1d.

Paul Bert's Observations on a Curarized Dog. With Note by
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